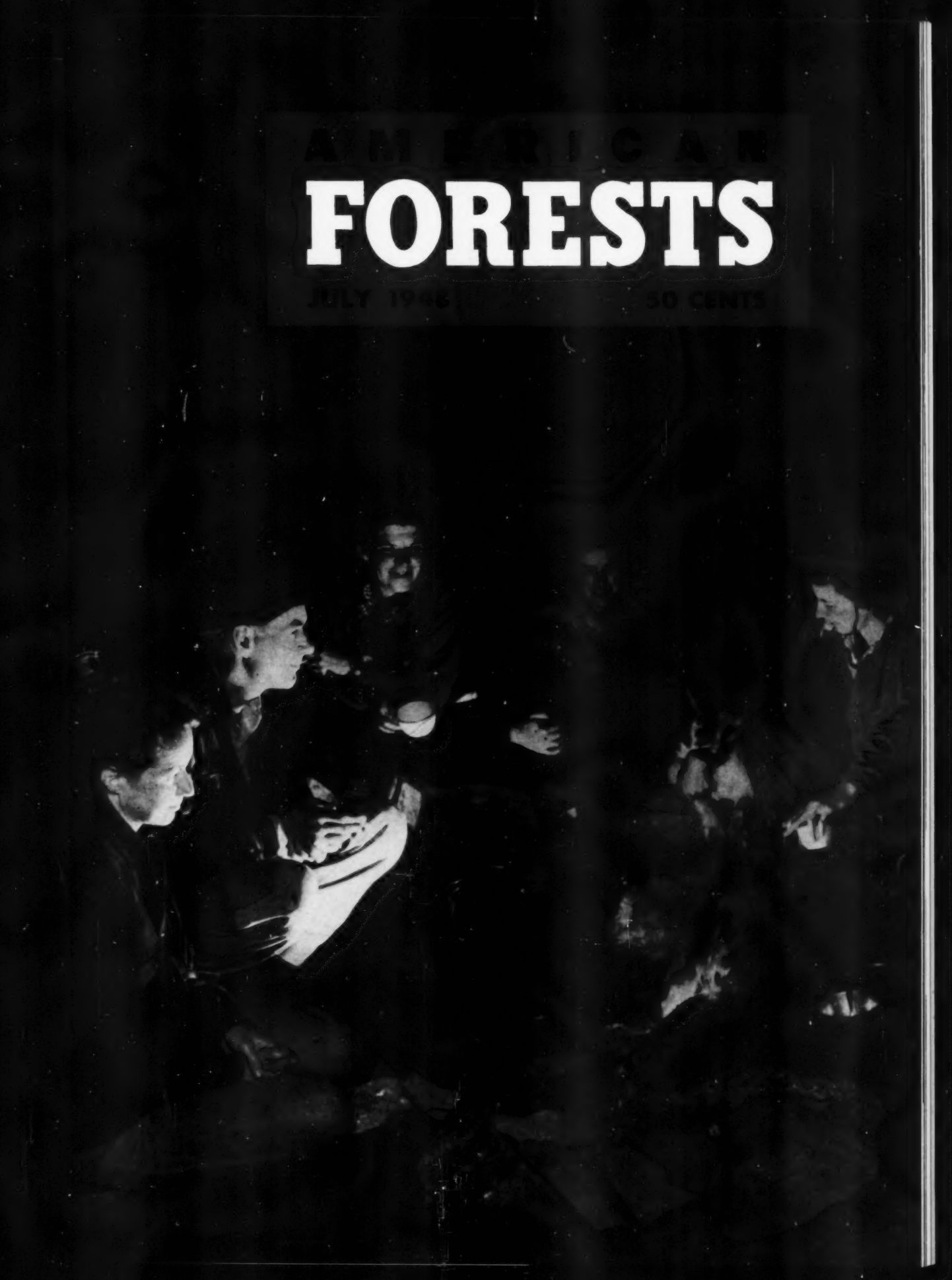
AMERICAN

FORESTS

JULY 1946 30 CENTS



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BELL TELEPHONE SYSTEM

AMERICAN FORESTS

Published by The American Forestry Association

VOLUME 54 JULY, 1948 NUMBER 7

ERLE KAUFFMAN
Editor

JAMES B. CRAI
Assistant Editor

ALBERT G. HALL
Associate Editor

FRED E. HORNADAY
Advertising Director

EDITORIAL— All's Not Well in the National Parks 295

FOREST IN THE ROCKIES 296
By Arthur H. Carhart

PROVING GROUND FOR LONGLEAF PINE 300

HOW TO COOK FISH 302
By Harry Botsford

FOREST PRACTICES THAT WORK 305
By John B. Woods

ROYALE VACATION 306
By Nat McKelvey and Helen Hargreaves

"SHALL I SELL MY TIMBER NOW?" 310
By Henry B. Steer

SIESTA MAÑANA—Part II 312
By M. A. Huberman

KNOWING YOUR TREES—Balsam Poplar 316
By Warren D. Brush

GI BLISTER BRIGADE 318
By James H. Tyndall

MANAGING YOUR WOODLANDS 320

NEWS IN REVIEW 322

CONSERVATION IN CONGRESS 324
By A. G. Hall

DEATH TAKES STATELY WASHINGTON ELM 326

BOOKS 328

COVER
"Wilderness Evening"
Photograph by Double K Mountain Ranch, Washington

AMERICAN FORESTS is published monthly by The American Forestry Association. Publication office, 919 Seventeenth Street, N. W., Washington 6, D. C. Subscription price $5 a year. The Editors are not responsible for loss or injury of manuscripts and photographs while in their possession or in transit. All manuscripts should be accompanied by return postage. The Editors are not responsible for views expressed in signed articles. Notices of change of address for *American Forests* should be received by the tenth of the month preceding issue. Entered as second-class matter at the Postoffice at Washington, D. C., under the Act of March 3, 1879. Acceptable for mailing at special rate of postage provided in Section 1103, Act of October 3, 1917, authorized July 10, 1918. Additional entry at Baltimore, Maryland, December 29, 1931. Copyright, 1948, by The American Forestry Association.

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LETTERS TO THE EDITOR

How to Help Private Planting Programs

SIR: "Where We Stand in Tree Planting," in the May issue, is an informative statement of the need for increased production of forest nursery stock, and for an enlarged program of planting by government and private agencies.

After several years of seed shortage, it is encouraging to know that seedling production is being greatly increased this year, with prospects that 129 million small trees will be raised in fifteen states of the South. This will remove one barrier which has held back the planting program in many sections of the country.

The article also considers the tree planters, and questions whether they have increased funds for putting stock out where it will grow in the forests. The rising costs of planting trees, said to run as high as $16.50 per acre, makes this question a most pertinent one. To stimulate the setting out of young trees, the federal government and some states have made a practice of growing and furnishing seedlings to farmers and other private landowners at, or under, the cost of production. Further encouragement would come from favorable action by Congress on the proposed amendment to the Internal Revenue Law, which would allow a landowner the choice of either capitalizing his planting costs or charging them to operating expenses.

Under the law as now interpreted, tree planting costs must be capitalized, a policy which has been called "the greatest single deterrent to a vast expansion of forest planting programs of private forest landowners." The association's program, calling for large-scale planting, would be furthered by strong support of this amendment. By incorporating it in the law, we would give a new impetus to the replenishment of our timber resource, through the stepping up of private planting programs.—*William D. Comings*, Manager, Woodlands Department, West Virginia Pulp and Paper Company.

A Hand for the Tree Man

SIR: Again we compliment AMERICAN FORESTS. We are particularly interested in the splendid results which Dr. Warren D. Brush is achieving in the series of articles "Knowing Your Trees." We have had the pleasure of Dr. Brush's close association with us here in Florida during the past winter (he was a member of the faculty) and, for this reason, have an additional interest in his series.—*H. S. Newins*, director, School of Forestry, University of Florida, Gainesville.

First Year of a Century Long Program at Shelton

SIR: The Shelton Sustained Yield Agreement was signed in Washington, D. C., in December 1946 (See AMERICAN FORESTS for February, 1947), and became effective on January 1, 1947. Thus *finis* was written to sixty years of *laisser-faire* timber cutting operations by one of the largest operators of the Pacific Northwest, and a beginning was made in what is expected to be a century-long enterprise in forest growing and harvesting in the state of Washington, jointly engaged in by the private company and the U. S. Forest Service.

First to be consummated under the terms of Public Law 273 (1944), this agreement pools for growing, protection and harvesting approximately 160 thousand acres of forest and cutover lands owned by the Simpson Logging Company and 112 thousand acres of national forest. The agreement is to run for 100 years, which is regarded as a reasonable growth cycle for Douglasfir, the principal species found in the area. All timber will be cut in accordance with plans worked out between the contracting parties; the public timber to be paid for at prices satisfactory to the government.

Not the least interesting commitment made by the operating company is an agreement to continue to improve utilization in woods and mill, to the end that maximum employment may always be provided by the enterprise. Already, after a year's experience with the new program, it is reported that regular payrolls now carry 1,800 persons instead of 1,350 employed a year ago.

Having purchased the "cutout" community of McCleary in 1941, together with several thousand acres of logged off land pertaining thereto, the Simpson company proceeded to construct new door and plywood plants there. Shelton, long the chief manufacturing center of the Simpson-Reed empire boasts lumber mills, paper plant and railroad shops of several years' standing, plus a new woodfiber insulation board plant completed a year ago (March 1947). The third point in this forest management triangle is the new forest headquarters of Grisdale, located forty-eight miles north and west of Shelton, a village of neat homes for families and modern living quarters for single men. More than 400 people reside in this community, includ-

ELECTION OF ASSOCIATION OFFICERS FOR 1949

The By-Laws of The American Forestry Association provide for a Committee on Elections, selected by the Board of Directors, whose function shall be to nominate a candidate for each office to be filled at the next annual election of the Association. The next election by letter ballot will take place December 1, 1948. Officers to be elected are a President for one year, a Treasurer for one year, five Directors for terms of three years each, and 21 Honorary Vice-Presidents for one year terms.

The Committee on Elections would welcome receiving the name or names of persons which any member of the Association wishes to have considered for these offices.

In addition to such suggestions, nominations may be made by the membership in the form of a petition signed by not less than 25 members of the Association in good standing. In submitting suggested candidates or nominations to the Committee on Elections, members are urged to include qualifications of the individuals.

Suggestions for the Committee, as well as nominations by petition, should be addressed to the Committee on Elections, The American Forestry Association, 919 17th Street, N.W., Washington 6, D. C. Members are urged to make their suggestions not later than September 1, 1948, while petitions must be received on or before November 1, 1948.

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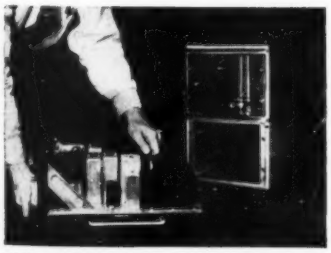

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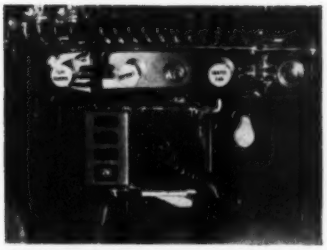

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NOW IS THE TIME FOR A WILDERNESS VACATION

This is the year to take that expedition you have been planning—to get away from the crowded highways and resorts, to ride remote trails, to fish in white water and to explore the last strongholds of nature. Nine wilderness trail expeditions and one canoe expedition have been scheduled for 1948 by The American Forestry Association's Trail Riders of the Wilderness. These offer wilderness vacations in the untamed back country of seven states, with a wide range of dates to fit into your summer plans. Expeditions are:

No. 1—Flathead - Sun River Wilderness, Montana
July 5-16. Cost $172
No. 2—Flat Tops Wilderness, Colorado
July 12-19. Cost $129
No. 3—Flathead-Sun River Wilderness, Montana
July 16-27. Cost $172
No. 4—Flat Tops Wilderness, Colorado
July 20-27. Cost $129
No. 5.—Sawtooth Wilderness, Idaho (closed)
July 27-August 6. Cost $168
No. 6—Maroon Bells-Snowmass Wilderness, Colorado
(closed) August 2-14. Cost $174
No. 7—Sawtooth Wilderness, Idaho
August 10-20. Cost $168
No. 8—Cascade Crest Wilderness, Washington
(closed) August 19-31. Cost $188
No. 9—Inyo-Kings Canyon Wilderness, California
(closed) August 28-September 8. Cost $187
Special—Canoe expedition on Minnesota-Canadian border. August 9 to 18. Cost $159.

Write or wire for detailed information and reservations

THE AMERICAN FORESTRY ASSOCIATION
919 Seventeenth Street, N. W.
Washington 6, D. C.

ing woods workers and the personnel of the newly organized motor truck transport unit.

It is expected that about one acre in ten will necessarily be replanted artificially, while the remainder will reseed naturally because of the leaving of seed sources at time of logging. Trees for such hand planting are grown by contract at the West Coast Lumbermens Association nursery, a few miles away at Nisqually. Oscar Levin has charge of tree planting and protection of the growing forest, under general direction of the veteran logger-forester George Drake, whose practical genius and vision have been largely instrumental in bringing about this forestry undertaking.

The basis of such a plan is, of course, sufficient mature timber to supply existing plants with wood in log or other form until the young timber now growing on cutover areas shall reach harvestable size. On the other side of the picture there must be and is sufficient well-stocked land to assure annual wood increment equal to the volume that is to be cut each year. Although there may be some variation from year to year, the aim and intention are to sustain the production of wood on the land substantially in balance with the harvest. That is sustained yield. As the years pass it is expected that more wood volume will be grown, as a result of better forestry, and that more products will be made and more people gainfully employed, as results of better manufacture and selling.—*John B. Woods*, Washington, D. C.

ANNUAL MEETING IN OCTOBER

At the time of going to press it was announced that The American Forestry Association will hold its Sixty-seventh Annual Meeting October 8, 9 and 10 at Chattanooga, Tennessee.

Theme of the meeting will be cooperative land use management by government—federal, state and local—and private enterprise. Highlights will be field trips to TVA's Fontana Dam, the Cumberland Mountain State Park, Lookout Mountain, Tellico Game and Fish Management Area and other outstanding areas.

Full details will be published in the August issue.

Road work for a slugger

"Caterpillar" Diesel No. 12 Motor Grader maintaining 30 miles of timber access road leading from Roseburg, Oregon, into Umpqua National Forest. *(Price of standard No. 12 model is $9,925, F. O. B. Peoria, subject to change without notice.)*

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Editorial

All's Not Well in the National Parks

Director Newton B. Drury has served notice that all is not well in the national parks and monuments. The trouble—too many visitors, too few rangers on the job, prewar down-in-the-heels service facilities now sagging under the weight of a record twenty-five million people, and an extraordinarily large array of those unhappy souls who, when face to face with grandeur, respond only to the urge to mutilate or destroy.

They are the vandals who throw rocks and trash into the hot springs of Yellowstone, often in such volume as to block the flow of water; whose initials and meaningless scratchings blot out prehistoric Indian pictures at Newspaper Rock in Petrified Forest, and who use knives or axes to deface scenic masterpieces in Zion and Bryce; who wreck trailside exhibits and observation points at Grand Canyon, destroy rare plants in Hawaii and chop up tables and outdoor amphitheater seats to feed their campfires in Grand Teton.

Unless this kind of vandalism is brought under control, Mr. Drury fears "the valuable and irreplaceable properties of the people in the national parks will undergo steady deterioration, and the areas will gradually lose their greatness and their beauty."

But, like a lot of other problems, there is little about this one that cannot be solved by an understanding and sympathetic Congress. What is needed are appropriations in sufficient amount to fill the vacant ranger stations throughout the parks and monuments, to re-establish protective patrols in effective force, and to expand the type of education that will check vandalism at its source. In fact, there is nothing now haunting the National Park Service that a generous congressional appropriation can't cure.

Mr. Drury, of course, being a public official, doesn't put it that way. He doesn't have to. After reading his annual report to the Secretary of the Interior it is not difficult to reach the proper conclusion. For example: "To curb the careless and the vandalistic; to provide protection to the visitor and the modest degree of interpretation which contributes so much to his enjoyment; to safeguard invaluable natural and historical resources 'unimpaired for the enjoyment of future generations'—to perform these functions even with fair adequacy is utterly impossible under existing circumstances."

In terms of public use and enjoyment, "existing circumstances" means that should you journey, say to Mount Rainier National Park, you would find a staff smaller than in prewar 1940 trying desperately to cope with the problems of twice as many visitors. You would have to drive over roads in various stages of disrepair to put up with obsolete, possibly unsafe accommodations. "Conditions in this park," reports Mr. Drury, "are duplicated in many respects in most of the others, where increased use has not been matched by increases in staff or in public accommodations; where, in fact, there have as a rule been actual decreases in both respects, along with deterioration in both public and administrative facilities."

Here are a few cases: At Petrified Forest staff members take turns at janitorial duties in public rest rooms; on three days each week in Death Valley, the protective force of this 1,850,565-acre monument, with 500 miles of road to patrol, consists of one ranger; at Zion and Bryce parks virtually the full time of the ranger force is required to operate two checking stations; at Glacier National Park, accidents to employees, due to an overload of work, have increased one-third, with a 200 percent increase in lost time.

The only reason "we have done as well as we have," reports Mr. Drury, is because a "devoted personnel, for weeks on end, give their government six and seven days of service for five days' pay because they can see no other way in which the requirements of law and their own consciences can be met."

Here, we suggest, is something that all park visitors paste in their hats—to read every time they come up against poorly equipped and overcrowded camp grounds, road systems in various stages of disrepair, inadequate utilities and hotel and cabin accommodations badly in need of modernization. Then when they feel the urge to complain that the government is not showing proper consideration and respect for their status as taxpayers, they can turn red faces eastward—hopefully toward the Halls of Congress in Washington.

Foxtail Pine in Sequoia National Forest—California. Photograph by U. S. Forest Service

Trappers Lake as seen from the rim of the Flat Tops in the White River National Forest

Forest in the Rockies

Its main function is to protect watersheds of the Colorado River—but historic White River National Forest is also famous for its wildlife and its rugged untamed wilderness country

By ARTHUR H. CARHART

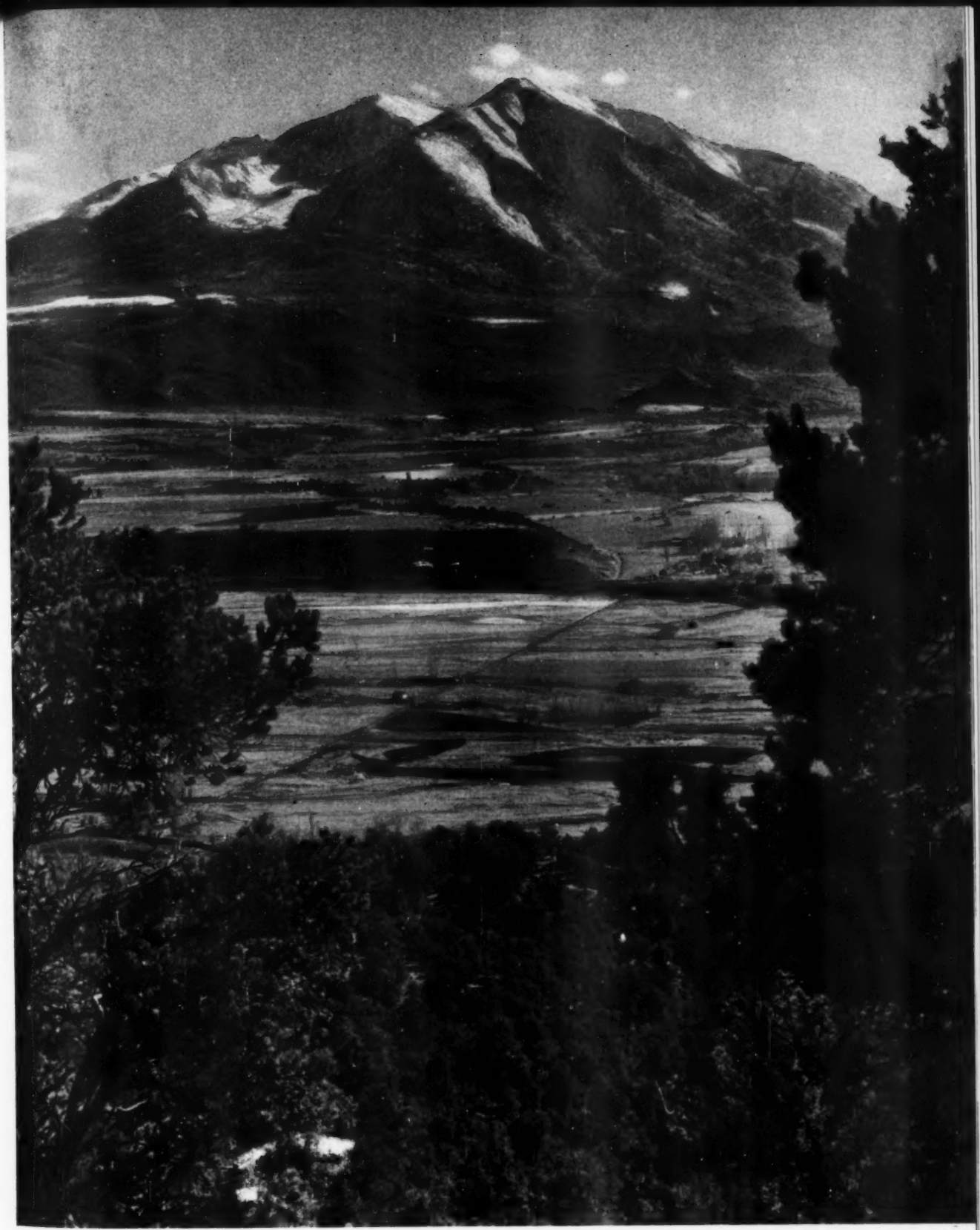
THAT fabulous uplift of earth crust, the White River Plateau of Colorado, is a gigantic tableland. Its top is made up of rolling meadows, park-like forests and abrupt cliffs below which are spruce-fringed lakes. Occasional higher points stick bare noses above the fringes of timberline. And at the edges of this upland empire tapestry cliffs break into tree-filled basins where more lakes shimmer and clear streams boil toward the great flow of the Colorado River.

Back in 1891, President Benjamin Harrison, by proclamation, included the major portion of this great plateau in a forest reserve, the second to be established—the White River National Forest.

Across the Colorado River, to the south and east, this fascinating tableland gives way to massive peaks, the most colorful in the Colorado Rockies. Here are the crags of Holy Cross Mountain, the serried crests that mark the continental divide, the massed spires of the Snowmass area. Here, too, are the gashed canyons of the Eagle, Fryingpan, Roaring Fork and other rivers. Until 1945 this unbelievable mountain mass formed the Holy Cross National Forest. That year it was fused with the White River creating a great forest empire of more than two million acres.

Thus the thousands of visitors to the White River National Forest this summer will see not only a public resource of unique interest and great beauty, but an outstanding example of the treasure and wealth they have and use in a great Rocky Mountain national forest. For the White River forest offers and supplies much in watershed protection, timber, wildlife, human use and enjoyment, grazing and many other values. And through all of these resources are woven the threads of history—the tough, bitter, heroic and colorful skeins of events of yesterdays.

Here, for example, was the land of the Ute Indians. Just outside the western boundaries of the forest the Utes had a race track. Nathan C. Meeker, an Indian agent, thought they were spending too much time racing their ponies and betting on results,



U. S. Forest Service

Part of a billion-dollar watershed—Mt. Sopris with Roaring Fork River Valley in the foreground

U. S. Forest Service

The herds of four hundred local stockmen graze on the White River Forest

so he plowed up the track. The Utes revolted. Led by chiefs Jack and Colorow, they massacred people at the agency and ambushed soldiers coming to the rescue. Finally famous Ouray, ranking chief of the Utes, brought peace, but as a result of that outbreak the Indians lost their residence in the White River country.

The fabulous town of Carbonate, high on the plateau, exploded with stampede in 1881. Its population of 3,000 left when the mining bubble burst. Today the site of Carbonate is marked only by a few ancient prospect holes. Many another boom town of that era is a ghost town of today. But at Aspen, the big silver boom, starting in 1879, developed mineral wealth that has totaled over the years $100,000,000 in silver, lead, zinc, gold and other metals. It was here,

in 1894, that the largest nugget of native silver ever mined was found in the Smuggled Mine. It weighed more than a ton.

The pageantry of mining and of the earlier Indian days is mixed with fur trapping, with lumbering, with the coming of the livestock business—all the threads that have been woven on the looms of the pioneer West. Against this colorful background can be viewed the resources of the forest as they exist today.

These are many. They include watershed values, timber, producing mines, forage on summer ranges for cattle and sheep, the greatest deer herd in the state, elk, some of the finest fishing waters and the great sweep of unmarred back country where humans may find respite from headlong living in a mechanized world. Statistics are dull unless they are dynamic. Those pertaining to this great national forest are alive and tell a story.

Ahead of all other values that exist in the White River forest are the basins that gather the water which feeds down through the Colorado River and its tributaries. First these waters irrigate ranches in near-by valleys; ranchlands supporting homes that could not exist without the life-giving water that flows in ditches fed by streams coming from the White River high country. At the other end of the water artery, the Colorado, the water from melted snow drifts, protected by the trees of the forest, and raindrops fed into tiny creeks near mountain crests, gather in Lake Mead. There they produce giant power, and then flow on to intensive production of truck crops, citrus fruits and other foodstuffs and to supply domestic and industrial water for great cities.

If it were possible to evaluate the watersheds of the White River National Forest and capitalize the wealth they annually underwrite, the total would run into smashing figures.

The Rocky Mountain national forests were created first to protect the watersheds and, second, to perpetuate timber production. The White River's wealth in trees, its production of timber that can be maintained under a continuing annual harvest, proves it measures up in serving this second basic reason for establishing the national forests.

Within the boundaries of this forest there are an estimated 5,600,000,000 feet of sawtimber. Last year 18,113,000 board feet of mature timber were cut from this public property by private operators under good forest practices. Foresters estimate that by following a long-range plan, the annual harvest can be maintained on a sustained basis of 20,000,000 feet.

There is a genuine question as to which of the other uses should be listed next. All are secondary to those primary uses of watershed and timber production. But all are of high value and important. Perhaps the best procedure is to present the facts and merely add them as more wealth produced in coordinate management with the fundamental values found in watersheds and timber.

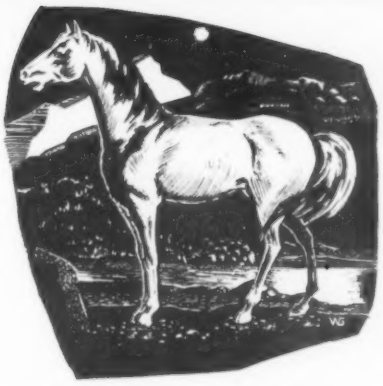
There were 91,000 recreational visitors reported as entering the forest last year. To this should be added the 9,000 that came to the famous old mining camp of Aspen, now one of the outstanding winter sports areas of the West (see "Rebirth of Aspen," January issue), and to other ski centers in this forest. And consideration also should be given to the 25,000 people who went camping and picnicking in the forest. A considerable segment of local business rests on these human uses of the forest—dollar business. But beyond that is a value in the richness of living in the open that cannot be expressed in terms of money.

In 1947, more than 400 livestock owners grazed 27,000 cattle and 154,000 sheep on this forest under permit. While the livestock secured only a fraction of year-long needs for forage from these publicly owned ranges, the cattle being there for around four months and the sheep from two to three months, this summer feed is important in the operation of many ranch properties with their irrigated haylands in basins below and outside the forest.

The wildlife wealth of the White River is prodigious. It is one of the greater of the secondary resources that comes along with the fundamental objectives of watershed and timber production.

Glancing back into history, it is a wonder that even seed stock was left in this great game area to reestablish the wildlife that exists on the forest today. In the 1870's local settlers derived major income from the slaughter and sale of venison to mining camps at Leadville, Red Cliff and other points. One hunter, Jack Burns, reportedly killed forty-seven head of elk one day in the Sweetwater country, hacked off only the saddle and hind quarters, and sold these for $1.50 each. Another old resident, Solon C. Patterson, tells of killing 700 deer in the summer of 1889, taking only the hides, and receiving $1.50 each for the skins.

In spite of this record, the White River forest area now is one of the better hunting ranges in the state. Around 30,000 head of mule deer



in the famous Piceance-White River herd make an annual migration from the lower country into the summer range of the White River Plateau. This is one of the few such seasonal movements of deer in mass migration that still follows the pattern of early days.

One of the largest elk populations in Colorado is in this area. It is estimated that of the approximate 275,000 head of mule deer and 30,000 elk in the state, twenty percent of the animals secure a greater share of their sustenance on ranges within the White River forest.

In those early days sportsmen of note and from far distances visited the White River country. One of the most famous was Teddy Roosevelt who hunted there in 1901. In later

(*Turn to page* 335)

Thousands of acres of unspoiled wilderness draw trail riders to the White River high country

U. S. Forest Service

PROVING GROUND FOR LONGLEAF PINE

In South Carolina the Southern Railway System is giving landowners a practical lesson in scientific pine growing

SOUTHERN landowners still not sold on the idea that pine trees can be made to produce a crop of crisp, green dollars — and their number runs into the hundreds of thousands — should make a pilgrimage to the Southern Railway System's 14,000-acre Lincoln Green Demonstration Forest near Dorchester, South Carolina. There millions of vigorous longleaf pines, along with some slash and loblolly, present a stirring picture of what can be achieved with overcut and run-down land in little more than two decades when scientific, business-like forestry methods and practices are applied. Tree growth at Lincoln Green is tremendously impressive; but what really opens the eyes of landowners is the revelation that while more than doubling in value, the forest *has returned a profit each year* since its establishment in 1925.

Photos by Southern Railway System

Scenes like this make the landowner sit up and take notice. Above, young trees planted on the contour. Below, young forest after thinning

The railroad welcomes such pilgrimages, since Lincoln Green is maintained as a "classroom" where landowners, woodsmen, anyone interested in growing pine trees, may come for "lessons" on how to increase their income and conserve a valuable natural southern asset, while assuring southern mills and manufacturers of an ample and continuing supply of timber, poles, pulpwood and other forest products.

Starting from scratch with an overcut and generally run-down tract, the Southern has converted Lincoln Green into a valuable, practical "how-to-do-it" area. Its foresters and rangers live in comfortable houses in an attractive village; other homes are provided for the forces of contractors cutting in the forest. In a neat business office accurate records are kept, plans are laid for the various types of cutting, and extensive studies are made looking toward developing such things as a new system of timber inventorying or a new way of predicting growth volume in terms of poles and dollars.

In over twenty years of operation Lincoln Green has paid more than $120,000 in wages to its employees and has furnished annual employment to twenty or thirty employees of pole, logging and pulpwood contractors. Also, it has paid out well over $50,000 in taxes. But its greatest contribution to the South's economy is that of providing proof that southern pines will produce a substantial annual cash crop to landowners and will, under proper forestry management, be an unfailing source of supply for those southern industries that use forest products as a raw material.

The Lincoln Green forest is predominantly longleaf pine, with some loblolly and 600 acres of slash pine planted on old fields.

By working with nature and by protecting the forest from destructive wildfire, ninety percent of the millions of trees at Lincoln Green today grew from seed cast by the few trees that remained when the virgin stands were cut about 1880 and later. The 600 acres of slash pine, of course, were planted by the company between 1925 and 1930. Two years ago these plantations were marked for selective pulpwood thinning and about thirteen cords an acre were cut

and sold. With all interest and other costs deducted, the plantations have yielded an annual net of over $2 an acre. A valuable fast-growing stand has been left, from which pulpwood and small pole thinnings will be made every four years.

Over sixty-five miles of fire breaks, fifty feet wide, are plowed and burned each winter. Also, a new technique of reducing extreme fire hazards has been developed for use only in the coastal plain regions of the South containing extensive longleaf stands of timber.

Long continued protection from fire in the longleaf timber type, while permitting many small seedlings to grow, also results in a dangerous accumulation of litter on the forest floor. Too often this accumulation of litter burns with uncontrollable explosive violence under dry, windy conditions. A controlled burning technique has been developed with the objective of reducing this extreme hazard. The controlled burning, undertaken during damp weather in the winter and under other favorable weather conditions, is usually done once every three to four years. A second and important objective of this prescribed burning is to prepare the ground for the reestablishment of a new stand of longleaf by natural seed fall.

The Southern's experience proves that profitable forestry starts with wise use of the ax. The first step in improving any previously unmanaged woodland should be a careful thinning or sanitation operation.

The owners of pine woodlands are learning that forestry procedures are about the same whether forests are large or small, or made up of loblolly, slash, or longleaf. Primary elements are fire control, proper thinning, selective cutting, and replanting where seed trees are not available to do the work. So that the small woodland owner may benefit from the methods employed in large forests, Lincoln Green is open to the small as well as the large private landowners.

Reforestation as demonstrated by the Southern Railway System has a practical as well as an idealistic aspect. Pines cut as pulpwood, poles, or sawtimber are hauled by the railroad from forests to processing plants. In a multitude of finished forms they make another trip by the Southern to market. This means money for the landowners, business for manufacturing and processing plants, a lot of jobs, and revenues for the Southern.

The technique of controlled burning, developed to lower fire hazards in longleaf pine stands, is practiced (to left of road) at Lincoln Green

Homes of Lincoln Green woodsmen, above, are both attractive and comfortable. Below, pulpwood cut on the forest being moved to mill

HOW TO COOK FISH

Fish, properly prepared, can be the finest of all foods

By HARRY BOTSFORD

ONE of the best sportsmen and conservationists I know informs me that more game fish are wasted or thrown away than are saved and cooked. It's largely because the average cook or angler doesn't know of any way to prepare fish for the table aside from frying, my friend contends. The statement seemed a trifle fantastic until I made a personal survey that virtually confirmed it.

Most of us, it seems, normally catch more fish than the immediate family can consume. We give our surplus to neighbors and friends who accept the gift with a false show of gratitude. When our backs are turned, the fish are actually tossed into the garbage can, an inglorious end for any game fish.

Fish, properly prepared, can be the finest of all foods. There are hundreds of easy simple ways of preparing it for the table that can make it the prime favorite of those who really enjoy tasty and palatable food. That's a statement that calls for proof and here are a few recipes I hope will do the job.

The next time you catch a large bass, clean and scale it, cook it slowly in a little white wine until it is tender and flaky. A few shallots and a little chervil will improve the basic flavor immeasurably. Let the fish cool, then flake off two cups of the white meat. Make a cream sauce of three tablespoons of butter, two tablespoons of flour, one-half teaspoon of salt, a pinch of red pepper, one cup of cream and milk mixed. Sauté the bass flakes with one-half cup of fresh mushrooms in a little butter for five minutes and then add the sauce. Put the mixture in a buttered casserole, cover with bread crumbs and bake until the crumbs are brown. Serve with a tart green salad, a baked yam—and if your guests do not cheer they don't know a superlative dish when they taste it.

A French guide once cooked pickerel that were out of this world for a group of us up in the Canadian wilds. They had a flavor and a succulence seldom encountered. He removed the fillets from the pickerel, skinned and boned them. Then the fillets were placed in a crock and covered with a marinade composed of one small glass of brandy, a large glass of white wine, one-half cup of sliced onions, some parsley, a trace of thyme, salt and freshly ground black pepper. They remained in the marinade for at least twenty-four hours. When the actual cooking took place, the fillets were removed, covered with a paste made of finely chopped mushroom stems, flour and butter. Then the fillets were gently lowered into a generously buttered baking dish, surrounded by the mushroom buttons and partially covered by the marinade. Twenty-five minutes in a moderate oven, basting frequently, he then added three tablespoons of thick sweet cream and one-and a half tablespoons of butter to the remaining liquid. When the butter melted, the pickerel was ready to serve. Here was pickerel at its best, a glorious, uplifting, piquant dish in the true French manner. I have tried this recipe with bass and musky fillets and it has never failed to please.

A baked fish is always easy to prepare, in camp or in the family kitchen. Sauté one sliced onion for each medium-size fish and make a bed of the onions in a generously buttered baking dish. Roll the fish in seasoned flour, place on the onion bed, add a small glass of white wine and bake in a medium oven until the fish is done and the liquid reduced. I know of no game fish that does not respond to this genial treatment. The fish has both flavor and delicacy.

Even a fish soup can be superlative. Again, here is a dish that is easily prepared. After a cold or rainy day spent on a lake or stream, this particular soup is a thing of joy.

Blend one-and-a-half tablespoons of butter and the same amount of flour into a paste and add it to three cups of milk, stirring constantly; cook until thick. Add one cup of flakes from a boiled fish, one teaspoon of dry mustard, a tablespoon of Worcestershire sauce, teaspoon of salt and a half cup of tender fresh peas. Cook over a slow fire for fifteen minutes, remove and add one tablespoon of Sherry wine, dust with paprika and serve with toasted crackers. It is filling, warming and delicious.

Ever try a fish chowder? There's a fishing and hunting club on the shores of a Pennsylvania lake where the chef serves a fish chowder that is a prime favorite for the small group of hardy anglers who find that musky fishing is best in mid-October. The weather is often foul; the wind that sweeps across the lake is bitter. It's what our British cousins call a lazy wind—too lazy to go around you, so it goes right through you. As a result of the weather and the exercise involved in jockeying a boat on rough waters, the anglers return to camp

Minam River, famed fishing stream in northeast Oregon

Photo by Ray Atkeson

at night with appetites that are in the upper brackets. That's when they want huge bowls of this traditionally fine chowder.

Under my urging and by virtue of a small gratuity, the chef consented to reduce his base recipe to proportions suitable for the average family. It was a sound investment and one which I will now share with you.

The chef says to cook two cups of diced potatoes, one cup of carrots, one cup of celery, a medium sliced onion and one cup of tomatoes in two quarts of chicken or beef broth until the vegetables are tender, adding one teaspoon salt and a half teaspoon of freshly ground black pepper. As the mixture of vegetables becomes tender, he says to fry four strips of diced bacon until crisp, at which time one-half cup of flour is added to the fat and permitted to become brown. Some of the broth mixture is added and the mixture becomes thick under brisk stirring. Blend this with the broth, add one pint of boiled diced fish, and one tablespoon of onion juice. Place the pot over a low fire, let simmer for an hour. Toast ship crackers, rub with a cut onion and spread with butter. Float a cracker on each large bowl of steaming chowder.

Gentlemen, there is a chowder! It warmeth and filleth, and it usually calls for encores. It takes a little time but the end results justify the time invested. It should be added that any of the truly good fish available at the fish market during the off season will produce a chowder that is equally good.

Deviled fish cakes—ever heard of them? Let me raise an enthusiastic voice in their favor. Once, when a group of us had been camping at Sugar Lake, we had grown weary of most of the conventional fish dishes. A weekend guest was a steel company executive from Pittsburgh, a genial companion and an individual who prided himself as an amateur chef. He was horrified when informed that we were fed up with fish dishes. If we would let him prepare fish for dinner the following night, he said, he'd prove that we had not exhausted all of the possibilities of fish. We accepted gratefully, and after we had tasted what he produced, we agreed without reservation that he had given us a dinner beyond reproach.

Naturally, I wheedled the recipe from him! It was for deviled fish cakes, the best of its kind I have ever tasted. To make these delicious gadgets, you blend one tablespoon of butter, two tablespoons of flour, two-thirds of a cup of white stock, and two beaten egg yolks with salt and pepper to taste. The mixture is chilled for a couple of hours before using.

Another blending job comes next: one cup of chopped, partially boiled bass meat, a cup of chopped mushrooms, two tablespoons of Sherry wine, one teaspoon of chopped parsley, a half teaspoon of onion juice, salt and pepper to taste.

Blend the mixtures, adding five tablespoons of bread crumbs and four of melted butter. Form into small cakes, drop into a hot skillet and brown in butter for ten minutes.

Served with mashed potatoes, creamed peas, a salad of water cress in a heavy French dressing, and hot biscuits, you have a meal that does more than merely satisfy. We found it to be perfect. I've made deviled fish cakes dozens of times since that day, in camp and in the family kitchen, and I have yet to find those who do not partake with great abandon and unconcealed joy.

Down at Corpus Christi, Texas, a Mexican cook employed by a friend had the knack of serving pompano that I found to be completely delicious. Up North, we don't get pompano very often; it's a fish that should be cooked and served very shortly after it is caught. Even when it is quick-frozen it loses much of its distinctive, delicate flavor. However, I discovered that the recipe for pompano is ideal for other game fish, especially for large brown trout.

If you care to prove the truth of my opinion, you can go about it in this manner: place a rack in a shallow baking dish, about a half inch from the bottom. Fill with white wine nearly to the level of the rack. Reisling wine is excellent for this purpose. Add a sliced onion and a couple of cloves, a few sprigs of dill, salt and pepper. Stuff the cavity of the trout with fresh dill, place the fish on the rack, cover the dish and place in a moderate oven to steam for at least forty-five minutes. Remove the fish, toss away the dill stuffing, skin, sprinkle with melted butter and top with a sauce composed of two tablespoons of freshly grated horseradish and three heaping tablespoons of whipped cream. This is a fish for formality, a very delightful dish and one that calls for the best you have in the way of fine linen, china and cutlery —candlelight, too, if you please.

Ideal with your trout *au vin blanc* are new potatoes, boiled, drained, drenched with butter and tossed with chopped parsley and a few chopped, tender green onions. Green beans with sour cream, a romaine salad with a tart dressing, and toasted English muffins—uplifting, my friends, very!

In camp, you can serve fish in this manner without all of the fuss I have indicated for home consumption. Mashed potatoes, stewed canned tomatoes, hot biscuits and a salad of onion rings in a dressing of condensed milk, raw egg and vinegar—and the usual pot of black coffee. Slices of good cheese and some toasted crackers will round out a memorable meal.

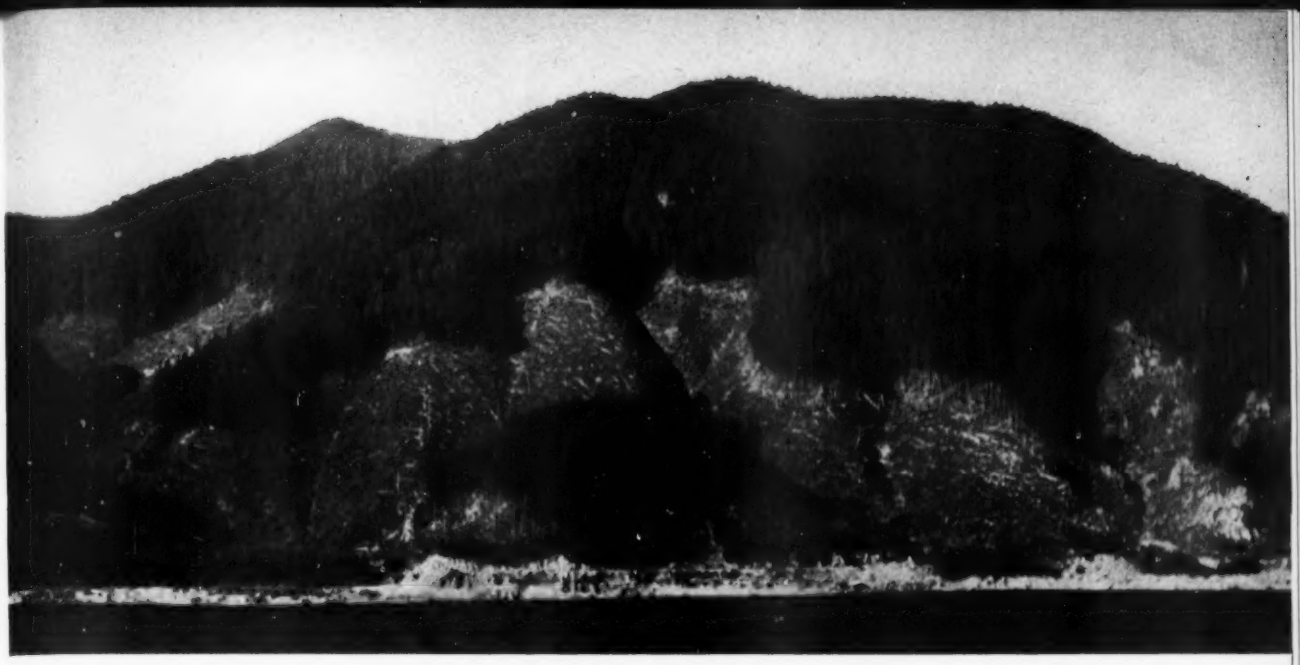
So many ways in which to serve fish! Not that fried fish isn't excellent, but a steady diet of it palls even the most robust of appetites.

Fish are excellent in a salad. Boil the fish—almost any kind—in a little seasoned white wine until tender, but not flaky. Dice boiled potatoes and mix with chopped celery, about equal amounts, together with a half cup of coarsely chopped walnut meats. Add diced fish equal to the combined bulk of potatoes and celery. Take prepared mayonnaise, dress it up with lemon juice, a little Worcestershire sauce, prepared mustard, a half tablespoon of onion juice, one half teaspoon of celery seed and salt and pepper to taste. Pour over the salad and toss lightly. Decant the salad into a bowl lined with lettuce leaves and top with sliced stuffed olives and surround with lemon slices. Place in the refrigerator for a couple of hours before serving.

A magnificent snack dish! Try it as such, serving with it wedges of toasted rye bread, spread with a mixture of butter and roquefort type cheese. Cold ale or hot coffee—or both! And your guests will heap praises on your head. After the usual Saturday night poker session at the famous Heart's Content Club, this was a favorite dish—and we slept soundly after partaking liberally, forgot our losses, as true sportsmen should.

Nothing can justify a waste of game fish. It's shameful to think of trout, bass, musky, or salmon ending up in a garbage can, or even fed to the family cat. These finest of all game fish deserve a more fitting and appropriate end. They were destined for the table from the time they emerged from the roe. For their final earthly appearance, they should be eaten with gusto, supreme enjoyment.

The eating of fish can be a pleasure equal to the joy of catching them.



Allen E. Thompson

When clear-cutting, Oregon operators must leave blocks or strips of trees to reseed area

Forest Practices That Work

Oregon, greatest of the timber-producing states, is proving with its forest harvesting law that reasonable regulatory measures can be effectively applied

By JOHN B. WOODS

Conservationists and others who for altruistic or selfish reasons seek to secure enactment of new laws—by the Congress or by state legislatures—soon learn that the development of regulatory or restrictive legislation is a slow and difficult process. In America, any attempt to limit individual freedom of action is suspect. Even though such proposals may appear highly desirable, the lawmakers are prone to move slowly. Thus it often happens that regulatory statutes are enacted which are admittedly inadequate and must be amended and strengthened bit by bit over a period of years, until something effective has been evolved.

This process makes use of the well-known principle of increasing concessions—the foot in the door gambit, so to speak. It also relies upon an equally important truth—that basically sound laws, honestly administered, create favorable environments for their own improvement.

For examples of hard-to-pass legislation one need look no farther than the numerous bills introduced in Congress and in many state legislatures during the past two decades for the declared purposes of stopping destructive forest harvesting and assuring regeneration of timber trees. Some of these proposals have appeared drastic almost to the point of being confiscatory. Others have been little more than expressions of pious hopes.

Except for an indirect approach to regulation of forest practices via the National Industrial Recovery Act (1933), the Congress has declined to pass any such laws. In several states, however, beginnings have been made—measures, it is encouraging to note, that are being improved by the trial and error method. Oregon, greatest of the timber-producing states and therefore especially significant, is an outstanding example.

One evening early in 1941, three men had dinner in a Salem restaurant. One was a member of the Oregon House of Representatives, the second was an officer of the U. S. Forest Service, and the third an employee of a group of Oregon timberland owners. They were there to discuss a pending proposal for state regulation of private timber harvesting, a bill which was expected to come up for the third reading (tantamount to passage or rejection) in the House the next day.

The legislator was a Democrat, and although his party was not in power at the time, he was in a position, because of ability and prestige, to make enactment doubtful if he chose to oppose the measure. So he was anxious to hear from representatives of Uncle Sam and of the forest industries before deciding what action to take on the forest practices bill.

The Forest Service man stated bluntly that he regarded the proposal as wholly inadequate; its limitation upon cutting too minor to accomplish regeneration of timber stands after logging. This the industry representative did not deny. His argument took another course. It would be impossible, he said, to secure enactment of a strong bill. Yet it was clear a start

(*Turn to page* 314)

Photos by Dennis Glen Cooper

Rock of Ages lighthouse, the friendly beacon off the southwestern tip of Isle Royale

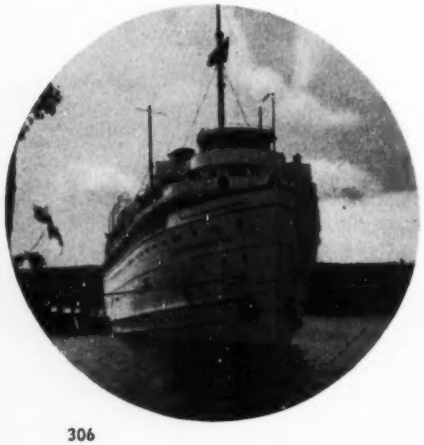
Royale Vacation

To Benjamin Franklin, Isle Royale was important as a fur trading outpost — but to modern Americans this "jewel of the north" is a vacation land of unusual charm

By NAT W. McKELVEY and HELEN HARGREAVES

CHIPPEWA Indians call the island *Minong*, "the good place to get copper." White men sometimes refer to it as King's Island. To Benjamin Franklin it was Isle Royale, not a vacation wonderland, but an important outpost in the empire of fur trading.

Rising from northwestern Lake Superior at latitude 48 degrees N., longitude 89 degrees W., Isle Royale is a vacationer's paradise preserved as a national park.



S. S. *South American* docks at Mott Island

For those seeking escape from tensions of modern living, Isle Royale offers swimming, boating, hiking, fishing. It is an unsurpassed, natural laboratory for the amateur geologist, archaeologist, photographer, bird lover, or student of animal life.

Here is God's land, visited but unchanged by man, 210 square miles of craggy shores, sparkling lakes, inland streams, and gently rolling, heavily wooded hills.

Here, too, among quiet groves of maples, spruce and aspen the proud moose finds refuge. For a neighbor he has the woodland caribou, found nowhere else in the United States.

This island of Indian superstitions, of fabulous echoes, of images in the sky came to the United States following the Revolutionary War. At the making of the Treaty of Paris, the envoy of the young colonies, Benjamin Franklin, made his point.

"Gentlemen," he declared, "Isle Royale, because of its location and its fur trade, must be ceded to the American colonial states."

Great Britain, in 1783, ceded the island. In 1843, the Chippewa Indian tribe in turn ceded its rights in Isle Royale to the United States. By 1847, explorers and prospectors swarmed the island, discovering what the Indians had known for centuries—that Isle Royale contained copper. In the early eighteenth and nineteenth centuries, French fur traders had ignored the metal, but now Americans feverishly fought and died for it.

Within eight years, the original mining companies, finding the copper unprofitable in commercial quantities, deserted the island. Not until 1867 did other men again open the pits, this time at picturesque McCargo Cove and Washington Harbor. Isle Royale became Isle Royale County, Michigan, with a county seat, Ran-

som, established on the northeast side of the island at Rock Harbor. Today, this once prosperous town is a pile of rubble.

After the second failure of copper mining in 1891, Isle Royale reverted to wilderness, absolutely abandoned in winter, disturbed in summer only by an occasional scientific expedition. One of these, the McDonald-Massee expedition, reached the island in July, 1928.

This group of explorers, one of whom was Commander E. F. McDonald, Jr., who had made two Arctic junkets with McMillan, had definite objectives. They wished to examine Isle Royale's mines, caves and village sites; to determine, if possible, what peoples did the primitive copper mining; to see if the island held any trace of Norsemen and to learn if there existed a fortified city of "pit-dwellers."

Today's vacationers may retrace the route of the McDonald-Massee party, reading for themselves evidence left by nature and history. To reach the island, the visitor takes a steamer at Buffalo, Cleveland, Detroit, Chicago, Duluth, Houghton, or Copper Harbor, Michigan.

On deluxe boats the passage is usually smooth. From Buffalo the trip requires nearly four days, but from the closer Michigan and Minnesota ports from two days to a few hours. Duluth lies 155 miles from Grace Harbor at the southern end of Isle Royale. From Copper Harbor, Michigan, the distance is a scant fifty-four miles.

When, in 1931, the Congress of the United States passed an act to establish Isle Royale as a national park, the lawmakers did so with the idea that this would not become a glorified playground but a genuine wilderness paradise. Accommodations at the park, which was finally established in 1940, reflect this attitude. They are comfortable but simple.

On the northwest side of the island lies Belle Isle Resort, while at the extreme southern end, at the head of Washington Harbor is Windigo Inn. Near here, at Windigo Point, the visitor, calling to the winds, will be amazed to hear seven or eight echoes flung back at him.

At Rock Harbor a mile or two north of Mott Island, on which park headquarters are situated, is Rock Harbor Lodge, squatting at the water's edge, surrounded by tall coniferous and deciduous trees. The combined facilities of these three inns will accommodate 400 tourists.

Some, perhaps, will prefer to camp

Craggy shore line shown above is typical of Rock Harbor. Below, hikers on pinnacle off Raspberry Island

Below, two sunbathers take their ease on the Rock Island Lodge lawn as the *Copper Queen* arrives from the mainland

out. For this purpose, the National Park Service has designated seven areas. Here, no special facilities are provided, just land surrounded by nature in her most lush garments.

Of volcanic origin, Isle Royale is an archipelago of more than 150 small islands. Two mountain ranges, the Greenstone and Minong Trap, run the length of the main island, reaching in the Greenstone range a high point, Ishpeming, 705 feet above the level of Lake Superior. In the basin between, the two mountains cup scores of lakes, five of them large.

Isle Royale's rocky coast, deep water and treacherous fjords make access to the island difficult. Amateur yachtsmen are warned not to attempt a landing.

On the island itself moss covered, slippery rocks make of exploration a real adventure. For the less venturesome, foot trails provide an easier route to points of interest.

In Isle Royale's forests, light green deciduous trees stand side by side with dark green conifers. Yellow and white birch, sugar, red and mountain maple brush boughs with balsam fir, white cedar, white and black spruce. Larch, white, jack and Norway pine rustle to the same wind that blows through black ash, red oak, quaking aspen, mountain ash, alders and willows.

From the fecund grasses spring trilliums and pyrola, devil's-club, blue iris, and the tranquil ghost flower. Bluebells of Scotland, wood lilies, ferns, lichens and rushes carpet wide areas. The amateur botanist may study Isle Royale's thirty species of orchids and twenty-one species of trees.

In some prehistoric mining pits of the island are gnarled 400-year-old patriarchs of the tree family. In these woods, in addition to moose and caribou, the animal lover will find the Canada lynx, timber wolf, coyote, mink, beaver and snowshoe rabbit.

Twenty years ago, Isle Royale had no moose. Now there may be as many as 3,000. When forage became scarce on the Canada mainland, the huge animals crossed frozen Lake Superior to the island, finding its abundant vegetation their salvation. They are now protected, since the park is a game refuge.

The camper or hiker may encounter moose at Lake Halloran, Grace Creek, McCargo Cove, Lake Eva, Lake Richie, or even within a few hundred feet of Rock Harbor Lodge. With caution, the camera-bug may photograph these animals.

The word "caution," according to Edmund H. Heller, the naturalist who guided Teddy Roosevelt's African hunts, cannot be overemphasized.

"The male moose," Heller warns, "is a most dangerous animal, especially during the fall. If suddenly confronted with what it supposes to be an enemy, it immediately attacks and strikes a deadly blow with its front feet."

In the waters off Isle Royale, a bull moose attempted to attack a small motor launch belonging to the McDonald-Massee expedition. Both launch and moose were in motion and, for a few perilous minutes, sailors of the motor vessel could not be sure whether or not they would capsize. Eventually, they outran the big animal.

From moose to minerals is a step that most Isle Royale visitors inevitably make. Almost unknown in other mining districts, Isle Royale's copper mixed with native silver is a combination called "half breed" by salty miners. Sometimes, in the abandoned diggings, the collector can pick up a choice piece.

Mineral fans also find top samples of the crystals of calcite and those of the zeolite group: analcite, datolite, stilbite, and chabazite. Two kinds of minerals, unknown outside Isle Royale, are Thomsonite, light green or light pink, banded and chlorastrolite, very dark green, marked by black lines.

Chlorastrolite gave Greenstone Ridge its name. It provides, also, a fascinating recreation when picnic parties scour the beaches, looking for "greenstones."

Since Isle Royale's history is intimately concerned with mining, some of its most interesting spots are the old mines. The tired, old Saginaw mine is located off Conglomerate Bay, a few miles south of Mott Island.

Tragedy struck at the Saginaw in the early 1850's. When a supply ship of food failed to reach them, forty-two miners at Saginaw, driven by hunger, fell to quarreling. Their bickering advanced to blows, then murder. When fighting had ceased, all but two of the miners lay dead. Later, these two returned to the scene, aiding with the burial of their former comrades. Today, on an island across the channel, can be seen grave markers with names and dates still legible.

Thirty miles south of Rock Harbor, near Hay Bay, is the "Old Mine." Here, according to visible evidence, prehistoric miners, probably ancestors of the Chippewa, used fire, water and mauls to remove copper from the earth. Displaying ingenuity, these ancient diggers built fires on the copper veins, then dashed cold water over the heated rocks, causing them to crack. With stone mauls, they beat away the matrix, leaving free copper.

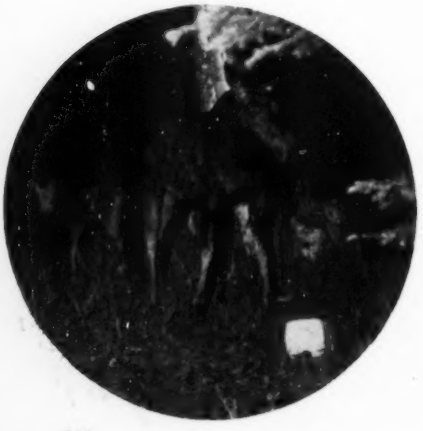
It was the white man, however, who in 1874 wrenched a mass of copper, weighing 5,720 pounds, from Isle Royale. In 1876, this gigantic chunk became a featured attraction at the Centennial Exposition.

Up the Silby River, about a half mile from Hay Bay, in a jungle tangle, is "Old Town" where lived the so-called "pit-dwellers." A scant 200 yards from these pit houses lies the "Old Fort," another pre-historic mining site.

For the amateur archaeologist, there are the Hay Bay ossuaries, prehistoric burial grounds of the Chippewa Indians. Undisturbed in these cave-like crypts lie the skulls and bones of Indians who tramped the island before the white man discovered America.

These ancestors of the Chippewa were less superstitious than their modern brothers.

Chippewa Indians of Minnesota will not set foot on Isle Royale. They will not venture there even to receive free moose offered by the Department of Conservation in an effort to keep the island from becoming overpopulated with the big animals. The Chippewa say that all evil spirits go to Isle Royale. They believe that a one-way tunnel runs beneath the surface of Lake Superior through which errant souls reach their perpetual torment. In effect, Isle Royale is the opposite of happy hunting grounds.



Surprise! The cameraman was waiting at the salt lick for this cow moose and calf

Cooper Arch on Amygdaloid Island, a favorite spot for hiking parties

Monument Rock, an erosional remnant formed by waters of glacial lakes

Any Chippewa will swear further that Isle Royale floats in Lake Superior, that it has the ability to suddenly leap into the sky. This apparent leaping is the famous Isle Royale mirage when, on occasion, the island does seem to be hanging inverted, suspended from the blue dome of heaven.

The visitor to Isle Royale would be missing a lot if he or she passed up interesting Wright's Island, home of thousands of lake gulls. From the main island, Wright is but a short hop across Siskiwit Bay.

At Chippewa Harbor and on Birch Island, the explorer may find bits of pre-historic pottery, arrow points of obsidian or chalcedony, or even a copper knife or scraper. And back of McCargo Cove is the site of the most extensive prehistoric copper mining in all America. Cedar shovels and ancient stone mauls of granite, weighing from one to forty pounds, have been unearthed at the old mine.

Hikers will find attractive the trail systems from Rock Harbor Lodge to Mount Franklin, Mount Ojibway, Lookout Louise, and Monument; from Bell Island Camp to Mount Ojibway and McCargo Cove; from Windigo Inn to Huggens Cove, Lake Desor and Siskiwit Bay.

Tourists who prefer fishing to hiking may lure brook, brown, or rainbow trout, northern or walleyed pike, muskellunge and Mackinaw or lake trout.

For the marine minded, boat trips to the light houses on Passage Island, Long Island and to the Rock of Ages are possible.

Isle Royale is strictly a summer paradise. During the winter it is icebound, snowbound and utterly desolate. Only two men keep lonely vigil through the winter months. A park ranger and a radio mechanic—to maintain the only means of communication with the world outside—share Isle Royale with its permanent residents, the moose, caribou, lynx, beaver, wolves and rabbits.

One hundred years ago a poor Chippewa woman, Angelique, fought the winter of Isle Royale and won. After seeing her husband perish in the cruel weather, she sustained herself by catching rabbits in snares made from the coarse black hairs of her own head.

Isle Royale today is almost exactly like the Isle Royale of Angelique's time. In summer, it is a warm, true friend. In winter, a hostile enemy.

Benjamin Franklin's wisdom secured the "jewel of the north" for the United States. But even Franklin's wisdom could not foresee that Isle Royale would one day become a popular vacation land for those who enjoy primeval wilderness with a minimum of sham, glitter and man-made diversions.

"SHALL I SELL MY TIMBER NOW?"

This is a good time to sell mature timber, says this well-known economist—but landowners would do well to reserve thrifty young trees for future markets. As brought out here, the timber dollar has always been a good dollar and will most likely remain so

By HENRY B. STEER

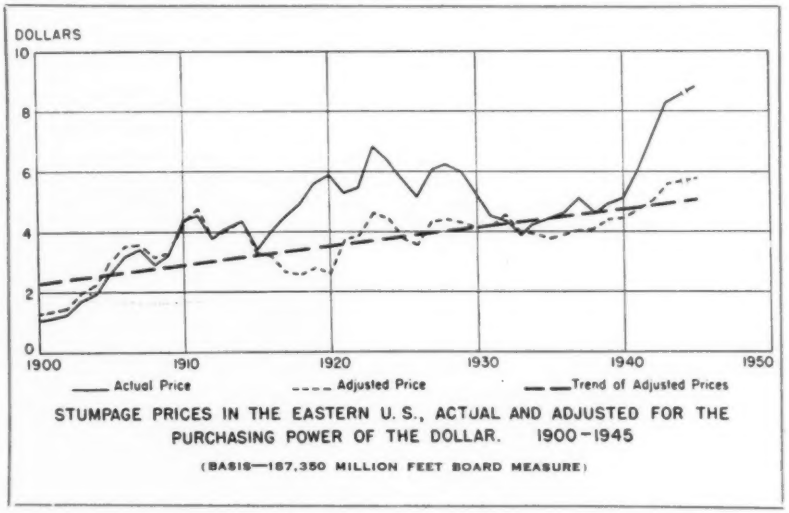
PRICES paid for standing timber at the present time are, according to all the information at our disposal, at the highest level of record. This has been brought about by the operation of a number of factors including the unusually high demand for lumber in recent years—first for war and then for civilian purposes—by rising prices of commodities generally, and by the growing shortage of accessible stands of timber of sawlog size.

Foresters in all fields of activity, but particularly those engaged in cooperative work with landowners, are being continually confronted with cases of timber owners who believe that stumpage prices are now higher than they will ever be again and, for this reason, think it wise to cut all timber standing on their land that has a sale value at this time. These owners question the advisability of leaving trees having a cash value as growing stock to provide future crops.

This line of reasoning on the part of individual timberland owners is difficult to answer because economic conditions several years or decades from now cannot be forecast any more accurately than can the political situation. The record of past stumpage prices may, however, give some indication of what may happen in the future. It is also reasonable to assume that the relative positions of stumpage and other commodity prices in the past will be continued in the future. What does the record show?

The record of past prices at which privately owned timber has been sold since 1900, based on sales of nearly 600 billion feet, shows that although the actual price paid for standing timber has increased in periods of inflation and decreased during periods of deflation and economic depression, the long-time trend of stumpage prices since 1900, when adjusted for the purchasing power of the dollar, has been distinctly upward in the country as a whole.

Considerable variation in the general trend is noted when the several regions and individual species, especially hardwoods, are considered separately. Because of smaller supplies and because hardwoods have been in demand for more diversified uses the price of hardwood stumpage has increased to a greater extent than has that of softwoods.



No. 1—Showing the upward trend in stumpage prices

Because of space limitations, the examination of stumpage price records will be limited here to the eastern United States—that part of the country east of the Great Plains. This price record is shown on Graph 1 on this page. Prices are shown only through 1945, the last year for which data were obtained on a country-wide basis. Reports from all available sources clearly indicate that 1946 and 1947 stumpage prices were at distinctly higher levels than those obtained in 1945 and that the strong upward trend which has been in effect since 1938 has been maintained.

This conclusion is substantiated by an examination of the trend of wholesale lumber prices as developed by the Bureau of Labor Statistics. This trend was practically identical with the trend of eastern stumpage prices for the period 1933 through 1945 (Graph 2 on opposite page). It is reasonable to assume that the trend relationship continued through 1947.

A pertinent check on the Bureau of Labor Statistics record of wholesale lumber prices is afforded by comparing it with the trend of f.o.b. mill lumber prices as reported by the Bureau of the Census. These trends were practically identical for the period 1926-1943, inclusive (Graph 3). The Bureau of the Census has not obtained lumber price data since 1943.

Stumpage prices have followed the same general trends since 1900 as have farm products, other commodities, and basic raw materials. They have, however, been more stable since 1920. The price indexes of all commodities and eastern stumpage are shown by Graph 4. Space will not permit the inclusion of regional or species price data, but the above relationships are universally true.

The trends that have been developed do not show as rapid an increase in stumpage prices as probably would have been the case if reported sales

THE AUTHOR, forest economist with the U. S Forest Service, brought out the bulletin, "Stumpage and Log Prices," in 1945.

of timber were fully comparable throughout the period shown with regard to quality, accessibility, and standards of merchantability. On the average, the quality of standing timber sold has grown steadily poorer, operable stands of timber have become more inaccessible, and standards of merchantability of standing timber as well as of logs and of lumber have been progressively lowered during the past few decades. Although the factor of scarcity has unquestionably accounted for a considerable part of the increase that has occurred in stumpage prices, one need only to compare the prices being paid for virgin and second-growth timber in equally accessible locations in the East to realize the effect of increasingly poorer quality on price.

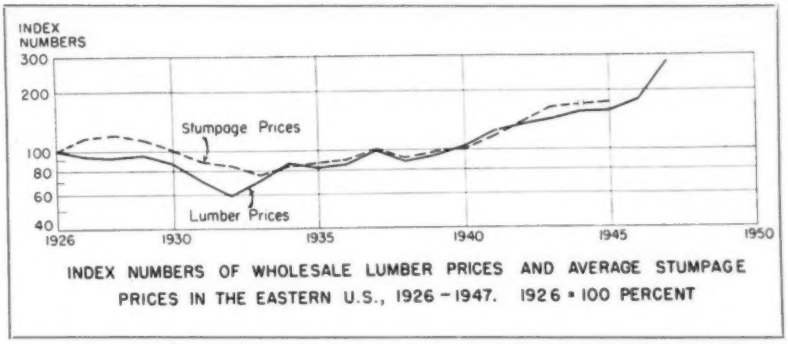
Closer utilization and lowered standards of merchantability mean that more timber is removed from the average tract than would have been taken ten or twenty years ago. This, in turn, means that the seller is getting more money than a comparison of average prices per thousand feet would indicate.

In view of the fact that it is a growing practice for timberland owners to cut and sell their logs rather than standing timber, the record of log prices since 1900 in the eastern United States is also significant. This record shows the same general trend as that of stumpage prices.

The importance of farm woodlands as a source of farm income is well established, as is the fact that wood-using industries, particularly in eastern United States, are dependent to a considerable extent on farm woodlands for raw materials. For these reasons a comparison of log prices in eastern United States with the average price of all farm products is particularly interesting and significant. Such a comparison shows that log prices have stayed at consistently higher levels than has the average price of all farm products since 1920 (Graph 5). It is also evident that log prices on the average did not descend to the prewar (1910-1914) level during the depression, while the average price of all farm products was below the 1910-1914 average in the period from 1931 to 1934.

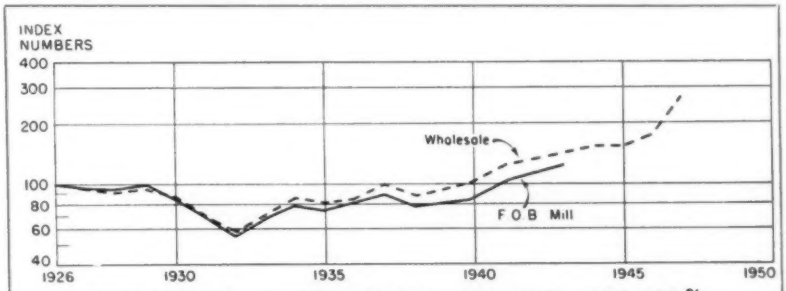
Many farmers have found that it is desirable to supplement their income through the production of forest products as a regular part of farm economy. If this is to be done, it is essential that farm woodlands be kept in a productive condition through the maintenance of adequate growing stock and other forestry measures.

(*Turn to page* 327)



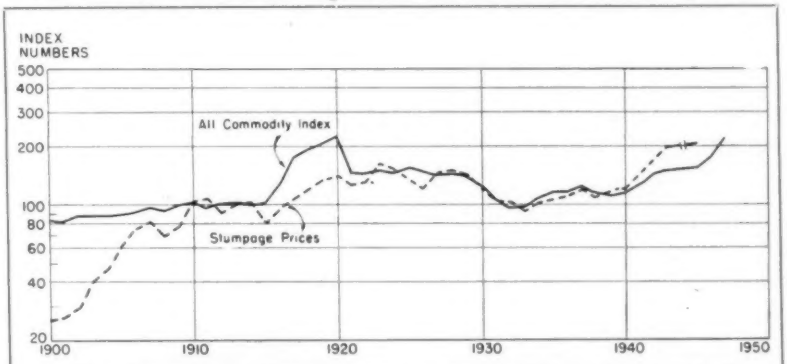
INDEX NUMBERS OF WHOLESALE LUMBER PRICES AND AVERAGE STUMPAGE PRICES IN THE EASTERN U.S., 1926 - 1947. 1926 = 100 PERCENT

No. 2—Wholesale price trend tends to follow stumpage prices



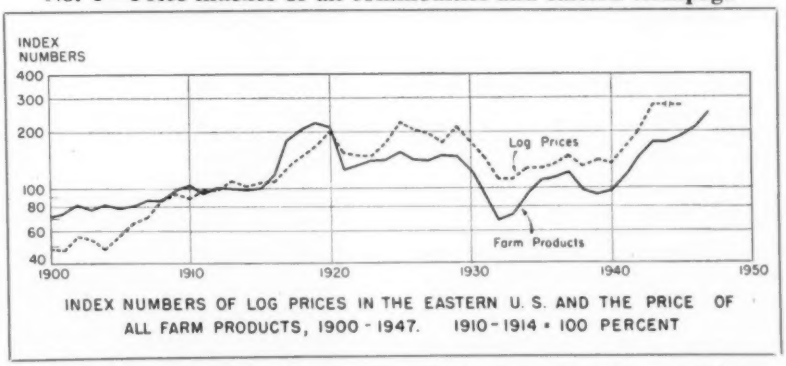
INDEX NUMBERS OF LUMBER PRICES, 1926 - 1947. 1926 = 100 %
WHOLESALE - BUREAU OF LABOR STATISTICS
F.O.B. MILL - BUREAU OF THE CENSUS

No. 3—F.o.b. mill lumber prices follow trend of wholesale prices



INDEX NUMBERS OF STUMPAGE PRICES IN THE EASTERN U. S. AND THE ALL COMMODITY INDEX, 1900 - 1947. 1910 - 1914 = 100 PERCENT.

No. 4—Price indexes of all commodities and eastern stumpage



INDEX NUMBERS OF LOG PRICES IN THE EASTERN U. S. AND THE PRICE OF ALL FARM PRODUCTS, 1900 - 1947. 1910 - 1914 = 100 PERCENT

No. 5—Log prices have been more stable than other farm products

SIESTA MAÑANA

A United Nations forester finds a technical revolution in progress in Latin America—a let's-do-it-now philosophy that is playing a vital role in the development of forest resources

By M. A. HUBERMAN

PART II

IN ITS few years of existence the National Pine Institute has striven valiantly to increase transportation facilities, with only slight success; it is still striving to solve this difficult problem which is common to several countries. Its efforts allocating cars to various sawmills and setting quotas of production for the industry have been somewhat more successful. At least it had been able to raise the level seventeen to fifty percent — and last year to seventy percent — of estimated capacity. It has also controlled, or at least delayed, the opening of new sawmills.

The institute has had its greatest success, however, in its reforestation program which it has placed under the supervision of trained agronomists. Supplied with ample funds, these young technicians have arranged for collection of seed, fencing large sections of cutover land from hogs, building firelines and roads over the fenced area, clearing grass and brush, and sowing seeds among the stumps. On such projects, of which there are four or five now, modern housing, garden, water, sanitation, medical and school facilities are provided for the laborers and their families. The cared-for plantations have given encouraging results in terms of survival and growth rate of trees. And the educational effect of such plantations should not be underestimated. They are giving the people who view them an appreciation of trees and forests, and the need for being careful with fire. The institute hopes that the examples will be studied closely by private operators so that they will voluntarily plant trees or seeds. Otherwise, the institute may have to enforce its regulations to get the operators to leave their cutover land in productive condition.

In contrast to the development of Brazil's Parana pine region, the Amazon Basin has remained practically untouched, possibly because of the hot, humid climate, the prevalence of malaria and other diseases, the scarcity of fresh, locally grown food, and the consequent weakened condition of what Indian labor is available in the sparsely settled basin. More attention will have to be given to the many urgent problems of the Amazon. There have been numerous botanical and zoological expeditions, as seen in the collections in the museum and gardens of Belem and other institutions of this kind.

A valiant effort by the U. S. Rubber Development Corporation during the war provided considerable knowledge, good will and experience, as well as some rubber. The Ford project at Boa Vista on the Rio Tapajoz also added to the fund of knowledge. The efforts to bring medical service to the people of the basin are proving very worthwhile and more are needed. Meanwhile mahogany and cedar logs and lumber continue to come out, largely as a result of several small-scale operations of private sawmills and logging contractors. Most of the mills depend on foreign capital which has brought in technicians and supervisory personnel. Logs are purchased, usually at the mill on the river, from native or foreign logging operators using native hand laborers; or the lumber companies, in some instances, have begun to do their own logging, sometimes with tractors and power machinery. For the most part, however, the job is done by Indian loggers who scout over an area to locate the widely scattered mahogany or cedar trees or a few other valuable species within dragging distance to streams or creeks.

The author, left, inspecting a Latin American sawmill

The trees are cut with an ax; and the logs are trimmed on the ends and often squared on the sides. Ropes and vines are fastened around the logs, and five or six men pull and push them to the nearest creek and make up small rafts with lighter logs of species which will float. These small rafts are poled down to a larger stream where they are made up into bigger rafts for the journey to the sawmill, sometimes 500 or more miles down the Amazon and its larger tributaries. Or the rafts may be bunched at some little settlement where a log buyer may purchase them, and with his tugboat haul them to a sawmill. As far up the Amazon as Iquitos, Peru, ocean-going vessels may take on a cargo of logs or flitches (thick planks for later resawing) for transport to Belem, Rio de Janeiro, United States, or European markets.

Numerous suggestions have been made for solving the many problems in developing the timber resource. Such ideas as bringing in power-chain saws, steam winches, oxen, tractors with logging arches, LST's to help solve the scarcity of labor and difficulty of transport have their supporters and their opponents. Similarly the idea of attempting to improve native diet by raising food crops in the basin, by teaching native women to preserve fruits and vegetables, and by bringing in cattle for fresh meat and dairy products, has been both pooh-poohed and vociferously supported. Efforts to make logging less expensive by cutting the less valuable, more common species of hardwoods, instead of only the widely scattered mahogany and cedar, have not as yet been successful.

But in this instance the technicians have made a start. Wood samples have been collected, identified and tested for strength qualities and industrial possibilities at the Institute of Technology at Sao Paulo. Some work along this line has also been done at the Yale School of Forestry, the Forest Products Laboratory at Madison, Wisconsin, and by a few private organizations. In other words, instead of arguing over what could or could not be done, the technicians' approach is to try, test and experiment. On the basis of such tests and experiments it is the hope of technicians that private loggers, mill owners and shippers will cut, saw, dry and sell lumber and other wood products from the species which have been considered unmerchantable until now.

Similar trials are laying the groundwork for larger scale medical services in the Amazon Basin. The technicians, at least, are not content "to leave things as they are to see what happens." They know what will happen—little or nothing. At least not enough to give any hope of converting the vast potentially rich jungle into a life-giving resource which could bring wealth to Brazil and useful products for eagerly waiting nations. It may be that the technicians of Brazil will require assistance from technicians not only of neighboring nations which include part of the Amazon within their boundaries, such as Bolivia, Peru and Colombia, but of some international organizations as well, such as the Food and Agriculture Organization of the United Nations or the United Nations Educational, Scientific and Cultural Organization. Such coordinated efforts should prove worthwhile.

Delegates from the United States and Latin America will gather in Denver, Colorado, September 7 to 20, for the first Inter-American Conference on the Conservation of Renewable Natural Resources.

This brings up the question of what other countries are doing about their forest resources. Peru, for instance, is very much interested in the development of its so-called *Oriente*, the eastern part of the nation which consists largely of the forested headwaters of the Amazon. It has set up an autonomous development corporation with funds to interest private operators in investing in the region. The discovery of oil has helped build up such interest. The corporation is also empowered to take whatever action is needed to build, complete, or maintain roads and railroads into the area. Peru, of course, has a special incentive to develop this region. Its large cities are principally on the dry, treeless, west side of the Andes. To obtain lumber and wood products from its own forests the logs or lumber must travel from Peru eastward down the Amazon River through Brazil to Belem, into the Atlantic Ocean, up through the Caribbean Sea, through the Panama Canal, and then down the west coast to Callao to reach Lima.

This means that, until recently, lumber dealers in Lima found it more profitable to buy large Douglas-fir timbers from the United States or araucaria pine from Chile, and resaw them into lumber, than to try to handle Peruvian lumber. And the demand was such that purchasers were more than happy to pick up their own lumber at the yard, instead of obtaining delivery service from the dealer. Fortunately for the transportation system of Peru, the mining activities at Oroya and Cerro de Pasco have made possible the construction of roads and a railroad from the coast over the ridge of the Andes. After traveling over this breath-taking hairpin highway under the brow of glacier-covered rocky ridges, one can sympathize with the complaints of the loggers that they cannot carry long logs on their trucks because the logs and the trucks do not negotiate the short turns together. With the most difficult part accomplished, the government has pushed an improved gravel road across the plateau country and down the eastern foothills of the Andes to Tingo Maria, and a dirt road from there to Pucallpa on the Ucayalli Branch of the Amazon itself. More work is needed to make this stretch of road usable in all weather, and plans are underway to push the railroad to the same terminal. When these two are completed the *Oriente* will be able to send logs and lumber as well as other products by truck and railroad car out to the coast at reasonable costs.

The technicians of Peru are, therefore, much encouraged in their efforts to build an agricultural and forestry research program at the Tingo Maria Experiment Station, in cooperation with United States scientists. Similarly they have begun a vocational agricultural and industrial school at Iquitos to train farmers, supervisors, and foremen to carry out or over ee the jobs of raising food, driving tractors, cutting trees, sawing logs, measuring lumber, and other tasks necessary in the development of the *Oriente*. Hand in hand with this work is the setup, corresponding to the United States county agricultural agent system, whereby U. S. and Peruvian technically trained men and women work with boys and girls in the equivalent of the 4-H clubs and Future Farmers organizations.

And as for the old problem of taking out the precious mahogany trees in logging operations and leaving only the low value species, there is at least one forward looking sawmill man who is willing to put off his *siesta* until *mañana*. Worried about the source of mahogany logs in future years when he expects his sons will be operating his mill, he sees no reason why he should continue trying to get logs from over 500 miles away. No; instead he is planting mahogany seedlings, which he raises in his own nursery, on the cutover jun-

(*Turn to page* 330)

Forest Practices That Work

(*From page* 305)

In the pine country of eastern Oregon the harvesting law reserves immature trees as well as two seed trees an acre

might be made in the desired direction and he was convinced that industry would support the state forester in strict enforcement of the law and in realistic examination of its shortcomings. In fact, he would pledge the aid of his group to amend the act until it should be really effective. Before the evening was over, the three men had agreed that half a loaf was better than none, and the legislator promised to support the bill.

It is not the writer's intention to claim that this conference marked the turning point in the campaign to enact Oregon's forest practices law.

Restocking by direct seeding is being tested in Oregon

More likely the really critical moment occurred several months earlier when industry leaders, meeting at Portland, approved the idea of introducing and supporting such a measure in the 1941 state legislature. Yet the Salem meeting is interesting as a sidelight upon the currents which swirl about new legislative proposals. It is even more interesting because events have borne out the forecasts and the promises made that evening.

At first the 1941 law created little stir. Yet its supporters rallied around and secured certain amendments by the 1943 legislature. Because of war's pressures, practically no changes were made in 1945, but two years later the act was given a thorough overhauling, so that it stands today as a model of its kind. Six thousand timber harvesting enterprises, which means all that are being carried on in Oregon on private lands, operate under its provisions.

The background of Oregon's so-called "Forest Conservation Act" was a record of many years of clear-cut ting of privately owned timber without conscious efforts to leave seed sources, and of burning and reburning cutover lands so that considerable areas no longer bore merchantable trees or even younger stands. The growing realization of the need for better forest practices was intensified by the terrible Tillamook fire and by the reburning of this devastated area after nature had succeeded in reforesting much of the land.

The possibility of reasonable regulation had been dramatized by Article X of the Lumber Code (N.I.R.A.) in 1934 and 1935. In fact, many operators on both sides of the Cascade Range in Oregon and Washington had elected to continue to abide by the Forest Practice Rules, evolved in compliance with this Code, even though the National Industrial Recovery Act had long since been decreed unconstitutional by the Supreme Court.

Also important in this background was the fact that forest owners and operators in the western pine and Douglasfir regions were, themselves, desirous of seeing foundations laid for state legislation which would set reasonable standards and require all operators to abide by them.

The objectives of the new law were declared in these words: "The preservation of the forest and the conservation of forest resources for the equal and guaranteed use of future generations, and the protection of forest and water resources and the continuous growth of timber on lands suitable therefor hereby are declared to be the public policy of the State of Oregon."

A basic requirement was that: "Any person, firm, or corporation cutting live timber for commercial use from lands within the State of Oregon, shall, in order to effectuate the policies of this Act, leave reserve trees of commercial species deemed adequate under normal conditions to maintain continuous forest growth and/or provide satisfactory restocking to insure future forest growth. In the conduct of logging operations and prior to and during slash disposal by burning required by Section 107-222, OCLA, proper precautions shall be taken and every reasonable effort made by the operator to protect residual stands and/or trees left uncut as a source of seed supply from destruction by fire or unnecessary damage resulting from logging operations."

These seed source requirements were, for eastern Oregon, that all immature ponderosa pine trees less than sixteen inches in breast high diameter, outside bark, should be reserved and left uncut, but where such reservation would not leave sufficient seed trees of commercial species to restock the land, there should be left seed trees of commercial species twelve inches in breast high diameter, or larger, in the ratio of two trees an acre, well distributed over the area involved.

For western Oregon, it was required to reserve and leave uncut not less than five percent of the area of each quarter-section (160 acres), well stocked with commercial species of seed-bearing size. These residual

(*Turn to page* 333)

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KNOWING YOUR TREES

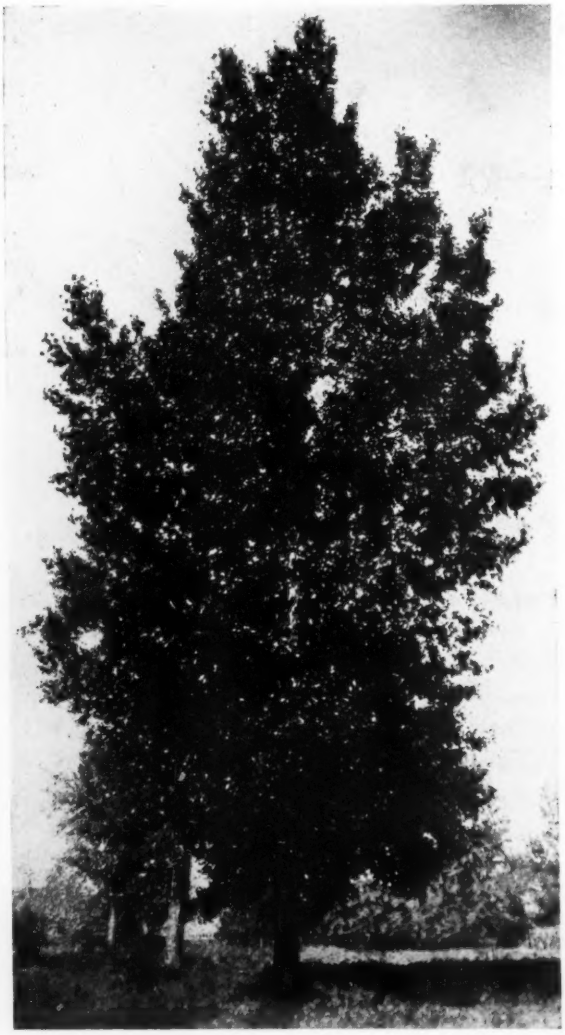
BALSAM POPLAR

Populus tacamahacca, Miller

By WARREN D. BRUSH

ITS range of growth extending across the entire continent from the western shores of Alaska to the eastern coast of Labrador, balsam poplar is strictly a northern tree and attains its best development in far northwestern Canada under the Arctic Circle in a climate too severe for the existence of most other trees. In this region it is the largest tree species and is found chiefly on low river bottomlands, the banks of streams and the borders of lakes and swamps. Often forming pure stands, it more often grows in mixture with willows, alder, birches, black spruce and white spruce. Under the most favorable conditions the tree grows to a height of 100 feet with a tall trunk six to seven feet in diameter.

In the southern part of its range, which includes, in the United States, the region from northern New England to central Minnesota and from central Colorado to western Montana and northern Idaho, it is smaller (up to 70 feet in height and 30 inches in trunk diameter) and is commonly found in small, widely separated colonies, remnants, perhaps, of more extensive stands which de-



L. W. Brownell

L. W. Brownell

Balsam Poplar is generally found in small, widely separated colonies. Growing from 70 to 100 feet in height, it has a long, straight trunk and a narrow, irregular open crown with few large limbs

veloped in post-glacial times. The long, straight trunk is usually clear of branches up to 30 or 40 feet and bears a narrow, irregular, open crown which takes on a pyramidal form in open grown trees and is made up of a comparatively few large limbs with a strong upward trend.

The clear, shining, reddish brown twigs are marked by oblong, bright orange-colored lenticels and much roughened by thickened leaf-scars. The terminal buds are about one inch long and the lateral buds smaller, from five-eights to three-quarters of an inch in length; they are taper-pointed and are covered by five scales and saturated with a pungently fragrant, amber-colored balsam which is called "Balm-of-Gilead" in the drug trade and is used medicinally as a constituent of cough medicine. The name tacamahac, meaning balsam, is applied to this tree as also the names balsam and Balm-of-Gilead. Other names occasionally used are cottonwood and rough-barked poplar.

The leaves are egg-shaped with long tapering points and fine, regular, rather blunt teeth on their margins. Three to six inches long and two to four inches broad, they are smooth and shining dark green above, pale green and more or less rusty colored below with a conspicuous network of veins. The slender leaf stems are one and a half to two inches long and are round in cross-section in contrast to the flattened leaf stems of quaking aspen and eastern cottonwood.

In March or April before the leaves open, the flowers appear in long-stalked catkins, the male and female on separate trees. The male or staminate are from three to four inches long and the loose-flowered female or pistillate ones measure from four to five inches in length before the fruit ripens. The light brown, hairy seeds mature in May and are contained in two-valved, short-stalked capsules, one-fourth of an inch long.

On limbs and the trunks of young trees, the bark is smooth and reddish brown, often with a greenish shade. On older trunks it is gray tinged with red, eventually becoming grayish black, three-quarters of an inch to one inch thick, and separated by narrow, deep, regular furrows into broad ridges, scaly or shaggy on the surface.

The soft, uniform-textured wood is light in weight, weak, easily worked with tools and not durable in exposed situations, decaying quickly in contact with the soil. A cubic foot of the air-dry wood weighs 23 pounds. The heartwood is light brown and the thick sapwood nearly white. Because it has little tendency to split in nailing, the wood is much used for boxes and crates. Another important use is paper pulp into which it is readily converted by the chemical process. Some of the largest logs are cut into veneer for the manufacture of fruit baskets.

The total stand of balsam poplar sawtimber in the United States has been estimated at 500,000,000 board feet and nearly all of it is in the Lake States and the Northeast. The estimated annual lumber cut is 13,000,000 board feet. The trees are planted to some extent for shade. They grow rapidly in early life and attain diameters of 14 to 17 inches in 40 to 50 years. The dark green, glossy leaves and bright reddish brown twigs enhance their value as an ornamental. The variety Hairy Balm-of-Gilead (*Populus balsamea candicans* (Ait.) Gray) is especially desirable for city and landscape planting.

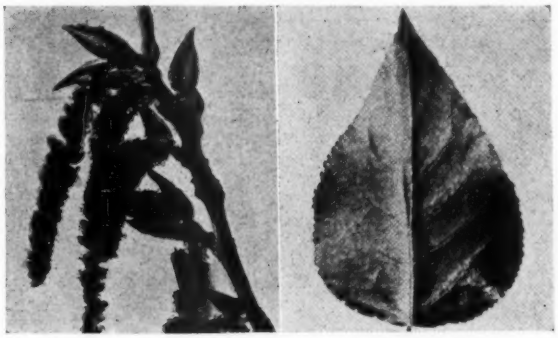


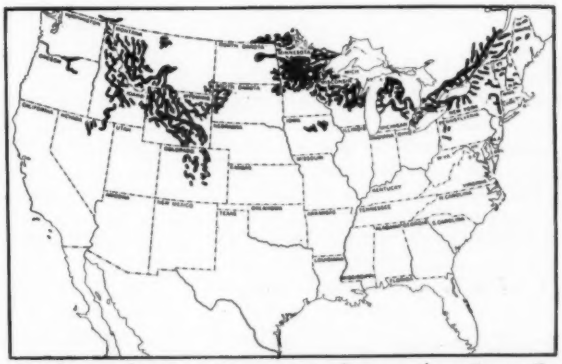
Photo from Textbook of Dendrology, Harlow and Harrar, courtesy of McGraw-Hill Book Co., Inc.

The leaf, upper right, is egg-shaped with a long tapering point. The flowers appear in long-stalked catkins, usually in March or April

Photo from Textbook of Dendrology, Harlow and Harrar, courtesy of McGraw-Hill Book Co., Inc.

The seeds are contained in two-valved capsules (left). The twigs (right) are reddish brown with terminal buds about an inch long

On young trees, the bark is smooth and reddish brown but on older trees it has a grayish red tinge, eventually becoming grayish black



Strictly a northern tree, its range extends across the entire continent from Alaska to Labrador and in the northern United States

Former combat men made this Illinois tree-planting program a reality

GI BLISTER BRIGADE

By JAMES H. TYNDALL

"OH, MY aching back!" was the unanimous chorus of 150 Chicago City College war veterans employed in the Cook County Forest Preserve reforestation program during their spring vacation in April.

The master plan for this 37,000-acre recreational mecca calls for 27,000 acres of forest cover—which means that 10,000 acres must be reforested. And William N. Erickson, president of the Board of Forest Preserve Commissioners, insisted that the amount of planting be increased this spring, despite a shortage of labor.

Charles G. Sauers, general superintendent, had an idea he could solve this problem by hiring high school or college students during their spring vacation—and a canvass of schools revealed that three branches of the Chicago City College had scheduled vacation dates at a time when good survival of the trees planted could be expected.

A proposal was then presented to the veterans' councilors at the three schools. The response was "Please don't leave us out of the program," and assurance was given that they could furnish all the men needed.

After final approval of the plan by the Board of Forest Preserve Commissioners, and taking into consideration such limitations as available tools, nursery stock, transportation and supervision, a quota of fifty men from each school was decided upon.

Bus transportation from a collecting point within the city was furnished, by the Forest Preserve District, to three separate planting sites. At each site a fifty-man crew was divided into three smaller groups, each under the supervision of a trained forester.

The planting was done in areas which, many years ago, were farm lands. Today these small tracts are covered with a heavy sod, and a scattering of haws and crabs. Most of these areas were heavily grazed before coming into Forest Preserve District ownership, and even though seed trees were present, the extremely heavy sod formed a barrier to natural reproduction of desirable species. Only the haws and crabs reproduced extensively in such areas and they have tended to form dense thickets not suitable for recreational use.

Since it is the policy of the Forest Preserve District to plant only species native to the Chicago region, a mixture of red, white and bur oak, white ash, American elm, hackberry, white poplar, cottonwood, red, sugar and silver maple, walnut, sycamore and black locust, of sizes varying from one to eight feet in height, was set out.

The veterans represented a typical cross section of college students in the Chicago region. Many of these future doctors, lawyers, business tycoons and professed playboys were handling a shovel for the first time for anything other than digging "prone shelters" and "slit trenches." By the end of the week most of them were satisfied they were taking the proper courses in college. The "blister brigade," as they termed themselves, did a splendid job of planting, but left never a dull moment for their supervisors. One young man, who stripped to his shorts one day, ended up with a terrific sunburn and appeared the next day wearing a mackinaw and a heavy winter cap. Such familiar phrases as "take ten" and "police the area" were once again popular and unpopular, respectively.

The enthusiasm felt by the men is evident in the fact that lost time due to absenteeism amounted to only slightly more than four percent, and many of the men expressed interest in obtaining summer employment with the Forest Preserve District.

From the standpoint of the Forest Preserve District administrators the project was highly successful for three reasons: first, it enabled the forestry department to remove from the nursery most of the planting stock which had reached a maximum planting size during the war years when no planting labor was available; second, it made possible the planting of 40,000 trees and fifteen bushels of walnuts which could not otherwise have been planted; and third, it opened up a new avenue for sufficient manpower for future planting projects.

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managing your WOODLANDS

A page dedicated to the management of woodlands, large and small — practical suggestions in procedure and technique and in the solution of problems on the ground.

What is your problem? American Forests will assist you in finding an answer. Address queries to The Woodlands Editor.

INVESTMENT IN CUTOVER LAND

Second-growth Douglasfir, wisely marketed, is yielding high returns and holds a promising future for this Washington farmer

When is clear-cutting good forest management? According to Koroleff and Fitzwater in The American Forestry Association's book "Managing Small Woodlands," clear-cutting of mature even-aged forests may sometimes be justified to avoid waste of wood through overmaturity.

To clear-cut or not to clear-cut. That was the problem facing farmer James Eaden in Snohomish County, Washington, when he found a good market for his second-growth Douglasfir stand. Back in 1925 he had purchased forty acres of forest land. The property was part of an original homestead of 160 acres on which his father had staked a claim over fifty years ago.

When Eaden was just three years old, his father had sold the homestead rights to the whole 160 acre for $300, but Eaden had to pay $1,000 for just forty acres and $500 additional for the timber on the forty. It was good timber land supporting Douglasfir, western hemlock and western redcedar in mixed and pure stands.

From 1925 to 1942 Eaden had improved the woodland by harvesting some of the poorer trees for fuel and small poles. Now, timber buyers were beginning to take notice of it. All his operations, including a sale of a right-of-way across the land, had resulted in an income of $978. So, when offers starting at $900 for the seventy-year-old Douglasfir on just seventeen acres were made he was tempted to sell. But he held on, making thinnings as necessary until in late 1942 he received an offer o $2,000 for this even-aged stand.

It now contained choice piling from ninety to 135 feet long, and from twelve to fourteen inches in diameter, but to make the sale would mean practically a clear-cutting of his best timber. At this point Eaden called on the local foresters for advice.

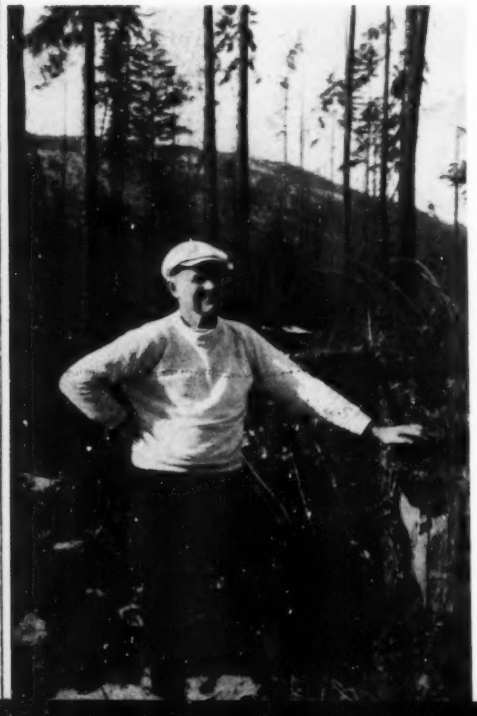
He learned that through the Washington Forest Products Cooperative Association, an organization of farm woodland owners, he could sell the piling by the lineal foot and realize a greater income than from a lump-sum sale. The foresters also helped him decide that at current prices his stand had reached "economic maturity"— that it would bring more if cut now than if it were allowed to grow for ten to twenty years longer for sawtimber. Even if permitted to grow, a clear-cutting would have to be decreed at a later date, if he wished to keep the stand in Douglasfir.

Consequently Eaden embarked on a total cutting, except for ample seed trees to restock the area. Utilization was complete. Piling was the principal product, but long butts and crooked stems were taken out for tie logs and what was left was cut up for fuel. Even part of the slash was converted to firewood at a profit and with a reduction in fire hazard.

Protection was given to adjacent stands so that logging damage was kept to an absolute minimum.

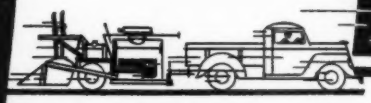
The negotiated sale, for all products from the woodland, finally resulted in 1944 in a total income of $7,183 — on just seventeen acres of the 160 his dad had sold for $300. A number of seed trees had been windthrown, but the others still stood as insurance against fire damage to the young seedling stand. Old Douglasfir is fairly resistant to fire and will continue to be a seed source. Later, when the new seedling stand is large enough to withstand a moderate fire, the seed trees may be harvested.

Foresters point out that while clear-cutting, with seed trees, was probably the most acceptable method on this area, it would be an unwise procedure in uneven-aged stands or in immature hardwoods of even age. Clear-cutting is one of the most drastic of forest harvesting methods, like potent medicine, it should be administered under "doctor's prescription." In this case the landowner wisely sought the advice of the local foresters before making his cutting plans.



Picture of a contented man—Farmer Eaden in his profitable woodland. Give him one good seed year and he will start another crop

WHEN YOU NEED FIRE LANES FAST



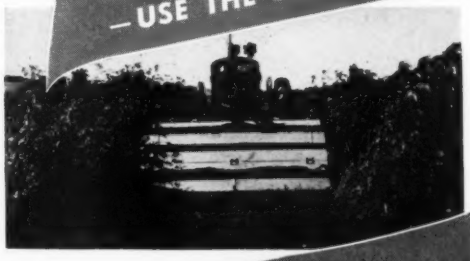
BUILD THEM WITH THE SEAMAN

One of the prime features of the SEAMAN in fire line construction is its great portability. Towed by a light pick-up truck, it's at the scene of a forest fire at highway speeds. Transferred at the scene to a towing tractor the SEAMAN immediately goes to work, — ripping, milling and chopping through heavy brush, — even clearing saplings up to 1½ to 2 inches in diameter, — and leaving behind it an open path 6 or 7 feet wide.

Forestry officials estimate that the SEAMAN easily does the work of ten men, — a vital performance when minutes and man-power are at a premium.

The SEAMAN is hailed by experienced foresters as the most important single unit in forest fire control. Investigate it now as an ally to your forces.

AND IN LAND CLEARING FOR FOREST NURSERIES, —USE THE SEAMAN



Old, buried tree and brush roots are a problem when land has been cleared for forest nurseries, for they often foul the new stock, — inhibiting healthy growth and development. Here the SEAMAN becomes a highly efficient unit for following behind a heavy disc to cut the heavier tree roots into segments. The SEAMAN digs out the root pieces and with the hood open, throws them to the surface for easy burning or removal.

FOR A SUPERIOR SEED-BED IN NURSERY WORK

The SEAMAN, — a pioneer in rotary tillage, produces a seed-bed so highly pulverized that similar soil treatment could be obtained only by hours of laborious hand-raking. Usually in one operation the SEAMAN does the combined work of plow, disc and harrow. At the same time, fertilizer can be milled and mixed-in uniformly throughout the tillage depth. For better seed germination and for hardier nursery stock, — prepare your seed-beds with the SEAMAN.

IMPORTANT! SOIL GRUB INFESTATIONS? KILL THEM WITH THE SEAMAN!

The first use for the SEAMAN by the Soil Conservation Department was for the eradicating of white grubs in nurseries. The rotating tines of the SEAMAN dig and throw the grubs with such velocity against the inside of the hood, that usually 70% decimation occurs in one trip. A second pass often results in a 90% mortality.

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NEWS IN REVIEW

IN upholding the constitutionality of the Bituminous Coal Open Pit Mining Conservation Act of 1945, the Pennsylvania Supreme Court recently supported one of the most progressive steps ever taken by a state in strip mine area restoration—and one that should go a long way in eliminating unsightly "monkey mountains" that remain after surface mining of coal. Under the act, mine operators are required to backfill all mine openings and plant trees, shrubs, or grasses in accordance with plans formulated by the State Department of Forests and Waters. The operators must register each mine job with the Department of Mines and post a bond of $200 an acre for proposed mining areas before new operations may begin. Restoration work must be completed one year after mining is finished.

• • • •

Making maple syrup sweeter and increasing the flow of sap is the goal of Dr. J. W. Marvin, botanist of the University of Vermont, who has already isolated a group of maples on his Green Mountain experimental farm whose output is superior. Working with clonal material, Dr. Marvin hopes to determine fertility, moisture, spacing and other site factors which would give maples the most rapid growth and the best yield. Syrup flavor is greatly influenced by the genetic conditions of the tree, richness of soil, temperature and the moisture.

• • • •

Tree planting on farms, state and national forests and other public and private forest land is expected to set a new record this year. According to the U. S. Forest Service this anticipated record is based on estimates made by state foresters and upon scheduled plans of the Forest Service for plantings in national forests. Most recent estimates from forty-three states show 1948 planting goals of approximately 220 million seedlings as compared with approximately 91 million last year. Plantings on national forests are scheduled at approximately forty-five million seedlings, compared with thirty-one million seedlings planted last year. Since it takes about 1,000 seedlings to plant an acre, realization of state and national forest goals could result in a total of 265 thousand acres planted.

Proof that more and more bankers are keenly aware of forestry needs in the United States is evinced by recently announced plans of the American Bankers Association to inaugurate an educational program, addressed primarily to country banks, to stimulate financing of tree farming.

• • • •

Research work on protection of water resources, productive soils and animal and plant life in the United States will be carried on by the newly formed Conservation Foundation under the auspices of the New York Zoological Society.

• • • •

J. R. Spratt, former assistant state forester of North Carolina, has been appointed manager of forest and land development for the Atlantic Land and Improvement Company, LaBelle, Florida. He will have charge of development of approximately 230 acres of company land in central and south Florida—including Hendry, Lee, Collier and Polk counties. Coincident with Spratt's appointment it was announced that new development work will start immediately in Hendry County and extend later to other counties, looking toward the further development of forestry, grazing and agricultural possibilities. Forest fire protection and scientific cutting practices are among the first improvements to be instituted. Mr. Spratt was on honor graduate of the North Carolina State College Forestry School in 1935.

J. R. Spratt

• • • •

A new pattern for closer local participation in the administration of the federal public lands has been established near Elko, Nevada, through "good neighbor" cooperation of the Department of the Interior, stockmen and sports enthusiasts to provide additional camping facilities in the famous Ruby Valley hunting and fishing region. More than fifty camp sites will be made available for lease on July 19 under a program of the Bureau of Land Management which gives veterans of World War II a preference right in filing applications in the District Land Office at Carson City until October 18, after which the general public may apply for the half-acre tracts. The leases will run for five years.

• • • •

Forest fire lookouts for the 1948 fire season have been assigned to their posts to complete the manning of the 3,200 lookout towers on the 152 national forests. The lookouts are part of the army of about 7,000 temporary seasonal employees which at the beginning of the fire season each year are added to the 1,200 permanent Forest Service employees who are available for fire suppression. Aside from the lookouts, the other temporary employees, when not on fire duty, work as forest guards, airplane fire spotters, mechanics and laborers. They are subject to call for fire duty at any time of day or night.

• • • •

To implement a new plan for closer coordination in the management of Alaska's fishery and wildlife resources, which the Fish and Wildlife Service put into operation on May 1, Director Albert M. Day has announced the appointment of George B. Kelez as supervisor of fisheries, and Dan H. Ralston as superintendent of law enforcement for the Territory. The new supervisors will work under Clarence J. Rhode, recently appointed regional director for the service in Alaska. Mr. Kelez has been with the service since 1929 as a biologist engaged in Pacific salmon research. Mr. Ralston, since 1942, has served as a wildlife agent at Ketchikan and Seward.

• • • •

Establishment of a National Forest Board of Review, composed of private citizens to advise his office in the solution of problems arising in connection with the use by the public of the national forests, was announced by retiring Secretary of Agriculture Clinton P. Anderson. The setting up of this board is an outgrowth of a proposal made by the House Public Lands Committee last October following public hearings on the grazing situation in the national forests. One of six, the proposal suggested that there be established "a system of impartial appeal boards designed to represent fully the interests of the general public as well as the permittees and the Forest Service so far as grazing and livestock opera-

(*Turn to page* 329)

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CONSERVATION IN CONGRESS

By A. G. HALL

As this issue goes to press, Congress is working overtime in a last ditch effort to pass on important legislative matters before adjourning or recessing for the convention period.

So far neither the Agriculture nor the Interior appropriation bills have received final approval, although the Agriculture bill, H. R. 5883, has passed both houses with considerable amendment and is now in conference. As passed by the Senate on May 25, the bill has all cuts in forestry funds restored to the full budget estimates except those for Dutch elm disease and national forest land acquisition. The Senate also approved all additions made by the House.

Senate Committee hearings have been completed on the Interior appropriations bill, H.R. 6705. As passed by the House on May 27, the bill carried $84, 293, 244 less than the budget had requested. Fish and Wildlife Service, however, received an increase over 1948 of $2,544,169, Bureau of Reclamation $83,669,859, National Park Service $2,372,629. The Bureau of Land Management received a decrease of $81,075 from its 1948 figure.

Two wildlife bills became law on May 20 when President Truman signed H.R. 107, the Lea bill, to authorize the Fish and Wildlife Service to acquire 20,000 acres in California for waterfowl management, and H.R. 4018, the Wherry-Burke bill, for the transfer of certain surplus war lands to the Fish and Wildlife Service. They became Public laws 534 and 537.

The question of public lands administration and policies may again be the subject of congressional investigation this summer. Representative Barrett of Wyoming, introduced on May 20 House Resolution 604 to create a select committee of three members to conduct a full and complete investigation of all matters relating to the use of the public lands for grazing purposes, and the administration of such matters by the departments of Interior and Agriculture and the military establishment. The purpose is to determine whether existing or proposed policies and practices are in the public interest and are conducive to the most effective and highest use of such lands. The committee would be called upon to make a report on or before December 31.

Likewise, another look may be taken at the problems involved in the Olympic National Park controversy. Senator Cain of Washington, has introduced S. Concurrent Resolution 55 to establish a joint congressional Committee to determine (a) the extent to which Olympic lands are adaptable for park purposes, (b) which lands, if any, are not necessary to effectuate the program of the National Park Service, (c) which lands, if any, can be transferred to the Forest Service for sustained-yield management, (d) the establishment of a permanent boundary line for the park, the need for highways, trails and other accommodations, and (e) to investigate other problems and subjects relating to the federal control and management of park and forest lands within the Olympic Peninsula. A companion measure H. Concurrent Resolution 203 was also introduced in the House by Congressman Mack of Washington.

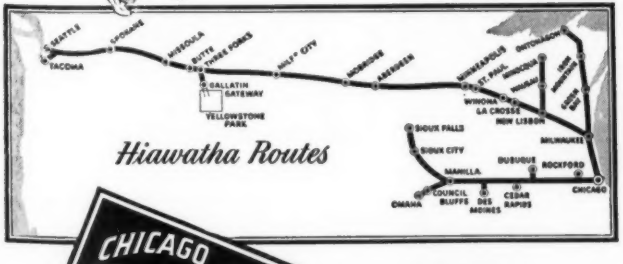
On June 9, the Senate agreed to House amendments to S. 1090, the Ball-Thye bill for safeguarding and consolidating the wilderness canoe country of the Superior National Forest. House amendments reduced the annual payment to the state of Minnesota in lieu of taxes on the national forest land to three-quarters of one percent of the appraised value.

The Cordon bill, S. 582, authorizing annual payments in lieu of taxes on all national forest land was passed by the Senate on June 1. As amended it provides for payments equal to one percent of the appraised value of the land plus 37.5 percent of the revenue from mineral deposits.

A sub-committee of the House Agriculture Committee has reported favorably, with amendments, H.R. 5733, to increase the Clarke-McNary authorization for cooperative fire control. As amended, the bill provides for annual increases of $2,000,000 each with a new top limit of $13,000,000 by June 30, 1951.

A summary of the conservation work of the second session of the 80th Congress is being prepared. Readers may obtain copies by postal card request.

It's a Hiawatha Year!



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The distinctive, glass-roofed Skytop Lounge shown in the illustration is a new type of observation room for track-side to mountain top scenic views. Skytop Lounges are carried on the Morning and Afternoon Twin Cities HIAWATHAS and soon will appear on the Olympian HIAWATHA. These cars typify the advanced styling of other Speedlined equipment included in The Milwaukee Road's great car building program.

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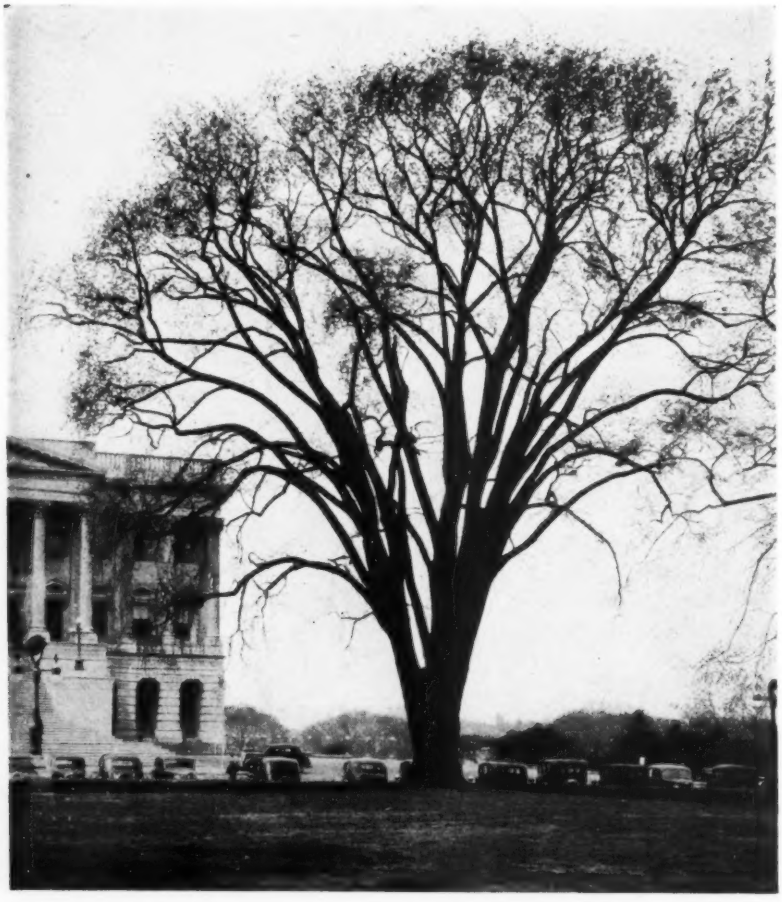
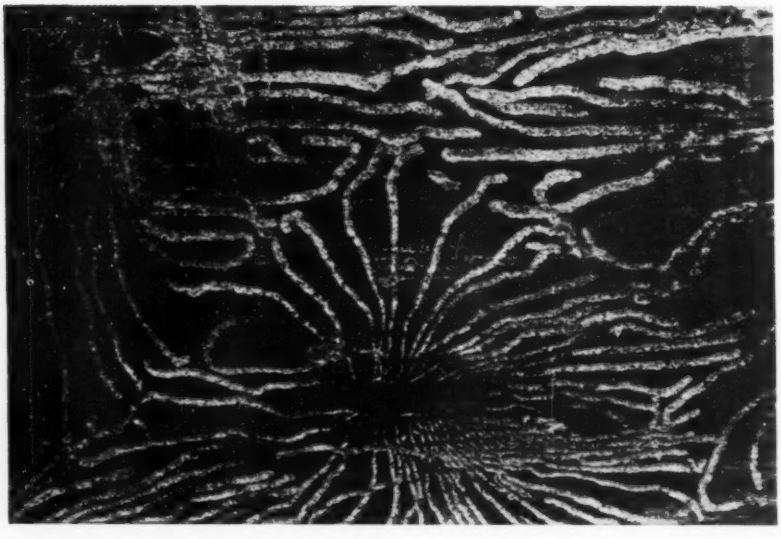
DEATH TAKES STATELY "WASHINGTON ELM"



A landmark that will be missed—the historic Washington Elm. Shown below is a section from the elm displaying the grooves made by the European elm bark beetle which had infested the tree



THE death of the stately Washington Elm adjacent to the Senate wing of the Capitol created considerably more national interest than the demise of many a minor statesman. Announcement last month by Architect of the Capitol David Lynn that the old tree (estimates have varied from 159 to 165 years) had been cut down to protect other elms from the European bark beetle with which it had become infested, brought a flood of letters from all over the nation requesting information regarding the tree's history and requests for portions of the wood to be made up into gavels and other mementos for clubs and service organizations.

As a result of the inquiries, Mr. Lynn has announced that a section of the trunk (fifty-nine inches in diameter four feet above the ground) has been set aside to comply with the requests in so far as possible. The architect also revealed that the tree now has a special file in the archives of his office in the basement of the Capitol containing the requests and data regarding the tree's history and final illness.

No medical patient ever had more expert care than the Washington Elm in its declining years. Numerous examinations were made by expert pathologists. Every effort was made to save the tree. This spring, after another round of examinations, it was agreed that the tree should be cut down. The bark on more than three-quarters of the circumference of the trunk was dead. Decay was setting in in the branches. But even more serious was the infestation of the European bark beetle, carrier of the dreaded Dutch elm disease. If allowed to escape from the tree, the beetles might have infested other elms in Washington, it was agreed.

While some historians contend the only tree Washington ever planted in the city that bears his name was an elm at a corner of the General's house, near the Capitol building, many Washingtonians prefer to eschew this information and stoutly contend Washington planted the big elm near the Senate because their grandfathers or grandmothers told them so. And their belief is substantiated by at least one historian, F. L. Olmstead, who quotes an annual report made by the Capitol architect in 1882 that Washington is believed to have planted the elm in 1798.

"Shall I Sell My Timber Now?"

(*From page* 311)

An interesting development in timber-sale technique which has been practiced in recent years by alert timber owners has distinct possibilities in increasing stumpage and log prices and in promoting the more efficient use of timber resources. This practice consists of selling standing timber and logs according to the most valuable potential use in available markets. Not only are the individual species sold at different rates, but different prices are fixed for different grades of each species and for different products such as sawlogs, veneer logs, cooperage bolts, pulpwood, etc. This is called integrated utilization.

The possibilities of obtaining higher prices for standing timber based on its most valuable use in available markets have only just begun to be realized. The more intelligent disposal of timber resources will make more intensive forest management economically practicable.

The timberland owner, as this writer sees it, has a choice of treating his timber as a mine to be completely exhausted for the maximum returns from what (as far as he is concerned) is one final cutting; or as a renewable crop to make the land continuously produce valuable timber products and insure the largest return and permanence of operation.

Now is a good time to sell the mature timber on any forested tract. Present high stumpage prices also offer an opportunity to dispose of low quality and deformed trees that have no market value in normal times, and whose removal would be beneficial to the woodland. The thrifty trees should, however, be reserved to form the basis of cuttings in the future.

The accumulated growth of young thrifty trees in the next few decades will in all probability more than offset any decrease in stumpage prices that may occur. And even if stumpage prices do drop, it is well to bear in mind that other commodities, and the cost of living will undoubtedly also drop and that dollars from stumpage sales will buy correspondingly more. The timberland owner who saves his thrifty young trees will have additional income over the years and this income—even if stumpage prices do decline—will buy proportionately as much as will today's income on the present inflated markets.

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SILVA OF NORTH AMERICA, by Charles Sprague Sargent. Published by Peter Smith, 321 Fifth Avenue, New York 16, N. Y. Price $200.

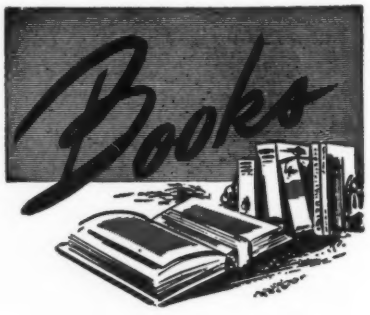
This description of the trees which grow naturally in North America exclusive of Mexico, long out of print and practically unobtainable, has now been reprinted in a limited edition, complete with all the illustrations, 14 volumes (bound in 7). Professor Sargent, former director of the Arnold Arboretum of Harvard University, was recognized as the highest authority on the subject, and the *Silva of North America* has taken first rank among the great scientific works of the world.

FOOTNOTES ON NATURE, by John KIERAN. Published by Doubleday & Company, Inc., 14 West 49th Street, New York 20, N. Y. 279 pages, illus. Price $3.00.

John Kieran had so much fun walking in the woods and fields in nearby New York and New England that eventually others came to walk with him. His companions are never identified by name but are conveniently labeled as the Drama Critic, the Astronomer, the Artist, the Magician and occasional extras—perhaps a soldier or a famous insect specialist. Birds, plant life, trees, insects — all are regarded as grist for the mill by these congenial strollers who are keen of eye and ear. Readers will be glad that Mr. Kieran decided to share these walks chronicling what was seen and what was said. This book is the next best thing to actually taking a walk in the woods. Wood engravings by Nora S. Unwin add flavor to Mr. Kieran's droll reporting.

SCIENCE—ITS EFFECT ON INDUSTRY, POLITICS, WAR, EDUCATION, RELIGION AND LEADERSHIP, by Douglas W. Hill. Published by Chemical Publishing Company, Brooklyn 2, New York. 114 pages. Price $2.75.

As science progresses, there is no phase of human life which can escape its impact. This book is an optimistic, reassuring volume, explaining that there is no need to fear scientific discoveries, whether they concern aircraft of incredible speed or the release of atomic power. The aim of science is to assist and not to destroy mankind. The chief contribution that science and scientists have to make to the world's welfare has never been tried, says the author. This book is a plea and a challenge to that end.



DESERT PARADE, by William H. Carr. Published by The Viking Press, 18 East 48th Street, New York, N. Y. 96 pages, illus. Price, $2.50.

This is a "high spot" book, presenting some leading plant and animal residents of one of the world's most interesting regions—the desert area from west Texas through southern New Mexico, Arizona and California, into southern Nevada and Utah. In a short introduction, the author, one of America's most versatile naturalists, tells how the desert came to be the arid region it is, and through what modifications wildlife has survived in it. His sections on desert mammals, birds, snakes, lizards, insects, wild flowers, trees and shrubs and cacti, consist of short identifying discussions and seventy-four photographs by Marvin H. Frost.

THE RING-NECKED PHEASANT AND ITS MANAGEMENT IN NORTH AMERICA, edited by W. L. McAtee. Published by American Wildlife Institute, Washington 5, D. C. 320 pages, illustrated. Price $3.50.

The work of seventeen leading authorities on the ring-necked pheasant throughout the United States is combined in a comprehensive treatment of the life habits and history of this game bird. It is a guide for the game breeder, game manager and sportsman.

SHADE AND ORNAMENTAL TREES FOR SOUTH FLORIDA AND CUBA, by David Sturrock and Edwin A. Menninger. Printed by Stuart Daily News, Inc., Stuart, Florida. 178 pages, illus. Price, $2.50 paperbound; $3.50, cloth-bound.

Not content with the 300 species of trees native to southern Florida, the tree lover looks to the tropical shores for new and different ones. This book is a description of the immigrant trees, exclusive of palms, that are now finding a place in the landscape of Florida and Cuba.

The publications listed below must be ordered direct from the addresses as given and not through the Association.

Study of the Alaska Tundra with Reference to its Reactions to Reindeer and Other Grazing, by Lawrence J. Palmer and Charles H. Rouse. Research Report 10, U. S. Dept. of the Interior. Sup. of Docs., U. S. Gov. Printing Office. Price 25 cents.

Results to Date of Studies of the Durability of Native Woods Treated and Untreated, by C. N. Whitney, Forest Utilization Service. Northern Rocky Mountain Forest and Range Experiment Station, Missoula, Montana.

A Survey of State Forestry Administration in Kentucky, Under the Direction of a Joint Committee of the Society of American Foresters and the Charles Lathrop Pack Forestry Foundation, by Alfred B. Hastings, M.F., Washington, D. C.

Conservation Soil-Water-Forest, published and distributed by the Baltimore and Ohio Railroad, Baltimore, Maryland. 15 pages, illus.—A brochure dedicated to the conservation of soil, water and woodlands for the purpose of maintaining industry and agriculture. Well illustrated, it will be of much assistance to teachers of conservation.

Federal-State Cooperative Snow Surveys and Irrigation Water Forecasts for Columbia Basin. Div. of Irrigation, Soil Cons. Serv., U. S. Dept. of Agriculture, Washington, D. C.

Effect of Different Methods of Slash Disposal on Jack Pine Reproduction, by J. W. Noakes. Silv. Note No. 78, Project P-16. Lands, Parks and Forests Branch, Dominion For. Serv., Canada Dept. of Mines and Resources, Ottawa, Canada.

Watershed Management for Summer Flood Control in Utah, by Reed W. Bailey and George W. Craddock. U.S.D.A. Misc. Pub. No. 639. Price 25 cents.

Management of Second-Growth Forests in the Douglas-Fir Region (A Progress Report, Dec. 1947). Pac. N. W. Forest and Range Exp. Sta., Portland, Oregon.

Common Diseases of Important Shade Trees, by Rush P. Marshall and Alma M. Waterman. Farmers' Bulletin No. 1987, U. S. D. A. Super. of Docs., Wash. 25, D. C. Price 15 cents.

Anniversary Report 1921-1946 of the Appalachian Forest Experiment Station, Asheville, North Carolina.

News in Review

(*From page* 322)

tions are concerned." Members of the board are Dr. Jonathan Forman, Columbus, Ohio; Professor Gilmour B. MacDonald, head of the Department of Forestry, Iowa State College, Ames, Iowa; and Dr. Roland Roger Renne, president of Montana State College, Bozeman, Montana.

• • • •

More than 26,000 acres of surplus land, together with suitable buildings and equipment have been transferred to United States universities and colleges conducting programs in agriculture, forestry and similar projects, according to the War Assets Administration. For example, about 6,200 acres at Camp Adair, Oregon, have been turned over to Oregon State College for use in a research program in agriculture and forestry. Also the college's School of Forestry will use the tract in training students. Another forestry project is being developed by the University of Tennessee at the Crossville prisoner-of-war camp.

• • • •

The Northeastern Lumber Manufacturers Association has set up a committee to work out plans to put logging operations in the New England States, New York and Pennsylvania on a sustained-yield basis. The necessity for this action was brought home, it was stated, by a realization of the severe inroads into its forest inventory made by the hurricane of 1938, excessive demands of the war years and destruction by forest insects and disastrous forest fires during 1945 and 1947. Vigorous action, the association pointed out, will do much to "prevent government control of timber cutting and further enlargement of government timber holdings."

• • • •

Prefabrication of houses is developing rapidly in Sweden, according to recent reports made by the Swedish National Federation of Manufacturers of Wooden Houses. Some sixty-five Swedish factories are now turning out houses, chiefly single-family type dwellings, although villas, bungalows and barracks are also being constructed. While a majority of the houses are being sold in Sweden, the prefabs are also being exported to Argentina, Denmark, France, Great Britain, Norway and other countries. Sometime ago hangars of prefabricated type were delivered to a Dutch airport.

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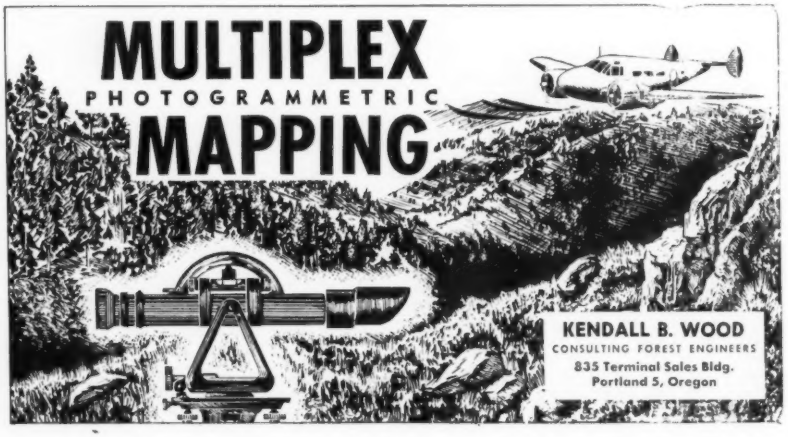

To Dedicate Memorial Redwood Forest

Dedication of the Madison Grant Memorial Forest and Elk Refuge in the Prairie Creek Redwoods State Park, California, will be signalized at a dinner in San Francisco on the evening of July 29, in the Red Room of the Fairmont Hotel. About 150 leading conservationists are expected to be present, among them DeForest Grant of the Boone and Crockett Club, New York, brother of the late Madison Grant; Governor Earl Warren of California; Chairman Joseph R. Knowland of the California State Park Commission; President Robert G. Sproul of the University of California; Director Newton B. Drury of the National Park Service; President Fairfield Osborn of the New York Zoological Society; Duncan McDuffie, president of the Save-the-Redwood League; Nicholas Roosevelt of Big Sur, California; and Laurance Rockefeller of New York. Forestry, park, and wildlife interests will be represented. Arrangements are being made by Aubrey Drury, secretary of the Save-the-Redwoods League.

The Madison Grant Memorial Forest contains 1,600 acres of the finest of the Coast Redwoods, as well as the habitat of the last remaining band of Roosevelt Elk in California. It is located near Orick, Humboldt County, 350 miles north of San Francisco.

Siesta Mañana

(*From page* 313)

gle forest area within sight of his mill. He has produced in seven years a grove of mahogany trees averaging almost six inches in diameter and forty feet high. By planting some each year he expects that in twenty years his boys will be able to begin harvesting his trees and to operate continuously on planted trees. Obviously the task is not impossible. Similarly cinchona trees, the natural source of quinine, have been planted by Peruvian and United States foresters and agronomists. Careful study is being put on the care and cultivation of these plantations to assure a reliable source of quinine, at least until the effectiveness of synthetic antimalarial drugs is proved and their availability is increased in the struggle against malaria—a struggle so essential to the future development of the Amazon and other parts of South America. This struggle is being ably conducted by expanding hospital and clinic facilities and sanitation education throughout Peru, through joint Peruvian and United States funds and personnel.

Similar stories could be presented with only slight local variations in Colombia, Ecuador and Bolivia. In the latter country, for example, the development corporation has selected the most favorable logging and sawmill locations on the basis of a preliminary survey; is purchasing and installing equipment; is building roads to tap forest and farming areas; and is attempting to develop new farm crops and cattle production. At the same time an agricultural experiment station and county agent program similar to that in Peru is moving towards realization. The government has sent one promising young man to study with the U. S. Soil Conservation Service, so he may return to supervise an erosion control program in the vicinity of his home community in southern Bolivia. The government is also beginning to consider the best means of initiating a forest service in its Ministry of Agriculture. For a country which in the past has depended heavily on the mining of its non-replaceable tin, the renewable resources of its lowland timber, farm crops and cattle products may mean a hopeful future; at least, it does in the eyes of her technicians. The completion of the railroads from Brazil and from Argentina may have a profound effect on this potential agricultural and forest production program. As educational facilities expand, the *siesta* of Bolivia will be pushed to a more and more distant *mañana.*

In this picture of growing interest

in forests, land and water, the plans of at least one other Latin American country need to be mentioned — Argentina. Not blessed with the large proportion of forested land that characterizes most of her neighbors, Argentina has recently renewed vigorously her interests in her forests. An aerial forest survey is being carefully completed, under the supervision of a United States trained forester. Plans have been drawn up for a large-scale shelterbelt program, patterned after that in the Plains States of this country, to protect and in some cases reclaim some of Argentina's overworked wheat and cattle land. This shelterbelt program, as well as a large-scale forestation operation in the delta region of the Rio Parana and Rio Uruguay for the production of rapid-growing poplar and willow for pulpwood, match-stock and fuelwood, are being planned and directed by a University of Michigan trained Argentine forester.

One hears much talk of the fabulously rich Misiones province on Argentina's northeastern border. Many species of high quality are shipped to Buenos Aires from the Misiones. The present chief of the government forest service made his reputation in the identification and testing of the technical qualities of Argentina's tree species. This information, which continues to be developed by the chief's technical staff, is highly useful as Argentina seeks to use its Misiones timber in its huge new building program in Buenos Aires. The Ministry of Public Works maintains a well-manned factory in Buenos Aires to make desks, benches, and other furniture for the schools and public buildings from Misiones logs.

The planned development of the coal fields in the southern part of the country will require the utilization of the scrub oak and beech trees, which grow in the vicinity, for mine props and timbers. The utilization possibilities have been studied and recommendations are ready. The quebracho of north central Argentina is still a highly important source of tannin, but concern is being expressed for the need of more conservative methods of utilization. Plans for this through legislation, and the other plans mentioned, may be realities *mañana*, but the technicians have high hopes that *mañana* will not be far off. At least they are not taking any prolonged *siestas* until their plans are realized. Meanwhile, they are taking steps to strengthen the teaching staffs of the University of Buenos Aires and other schools with experienced technicians to produce their own trained foresters

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and *agronomos.*

Well, what does this technical revolution in Latin America really mean? Does it mean that overnight our neighbors will enact legislation, make appropriations, reorganize government services, re-examine governmental relations with private industry both domestic and foreign, and promote joint action with other republics or through international agencies, all to avoid the mistakes made by the United States, in the development of their soil, water and forest resources? Viewed realistically, it is not likely that these changes will take place immediately, nor will they occur uniformly in all countries. However, and this is the important thing, policies are likely to be decided more and more on the basis of studies, research and recommendations by the clear-eyed technicians.

Of course, the tired skeptics will say, "There have been other days in which young eager beavers tried to do a real job in conservation and other fields. But always there were older cynical *politicos* who squelched such efforts. What makes you think that the current crop of *technicos* will end up with anything other than broken hearts and discouraged spirits?"

In answer one can only point to the fact that practically all the Latin American governments are signatories to the United Nations Organization and one or more of its specialized agencies such as the Food and Agriculture Organization. As signatories such governments have committed themselves to participation in progressive measures to improve the lot of their people. And the people themselves are rightfully beginning to expect more than promises from their *politicos;* they are becoming more and more insistent on government *for* the people. And besides there are more of the young *tecnicos* than ever before, and United States schools are continuing to train new reserves. The fight is on!

The experience gained from Inter-American technical efforts during the war and the training which these Latin American young men and women have received in United States universities and government organizations are bound to have a real influence in improving government services and in orienting the technical guidance in private industry. The concern for their forest resources, and the rapid technical development of their forest products industries are omens that *mañana* is not the time to do things; *mañana* is the time for *siesta.*

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Forest Practices

(*From page* 314)

stands might be marginal corners between logged-off areas, strips of timber along creeks, across valleys or along ridges or natural fire breaks. An operator might elect to stagger his logging "settings" and thus leave larger areas of uncut timber for long enough periods to reseed the land where cutting had been done. As an alternative to any of the foregoing, he might elect to leave seed trees of commercial species at least eighteen inches in breast high diameter in the ratio of two trees upon each acre, well distributed over the area cut.

There was provision for substitution of alternative methods, including but not limited to artificial restocking by seeding or transplanting, or to selective cutting of the entire stand. It was required that such alternative plans be submitted at least thirty days prior to the beginning of operation and, of course, that they be satisfactory to the state forester. The act did not apply where removal of trees was for the purposes of stand improvement, to clear land for bona fide mining, business or residential use, or for clearing right of ways, landings, camp sites, or fire breaks.

It was further provided that within one year of the date of the act, and at least once each year thereafter, it should be the duty of the state forester to examine all timber harvesting operations. Where the operator had conducted his logging in compliance with the act, he was to be released from further obligation. If, however, the operation was in violation, the state forester would notify the operator, specifying the respect in which the law had been violated, and would direct such steps as he should deem necessary to assure future compliance. If the operator should continue to refuse to conform, it would be the state forester's duty to enter and reforest the lands at the offender's expense, to whatever extent this could be accomplished by expenditure of $100 for each forty acres. In other words, the penalty for non-compliance was $2.50 an acre, which the state forester might expend to attain the objective of restocking.

During the first two years, the state's efforts to administer the law were carried on chiefly with the assistance of regular fire law compliance inspectors. At the same time, some effort was made to acquaint loggers and the general public with the statute and thus to make compliance a matter of cooperation rather than coercion. By the time the legislature con-

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vened in early 1943, it had become apparent that certain changes were needed and the law was amended in several important particulars, including a provision to authorize the state forester to formulate rules and regulations equivalent to or interpretive of several of the requirements.

The 1943 legislature provided further that seed blocks should be left standing until the dependent cutover areas should be restocked in a manner satisfactory to the state forestry authorities. Also, a seed tree was clearly defined as "a live, wind-firm tree of commercial species and of seed-bearing size, possessing a relatively full crown." In this way it was made clear that the purpose of the act was really to reforest the land and that nothing short of accomplishment would be satisfactory to the lawmakers.

Another significant amendment made forest landowners jointly responsible with timber operators for violations. Still another doubled the amount which the state forester might expend for artificial reforestation and which the operator or owner who violated the law would be required to pay. While $5 probably would not permit replanting of an average acre, yet the increase of the penalty from $100 to $200 for each forty acres found in violation was a step in the right direction.

By 1946 an adequate field staff was in the making, and really searching study had been made of the law's effectiveness. There had been logged in western Oregon, under its provisions, approximately 490,328 acres, of which about six percent was found to be in violation. A report made at the end of 1945 pointed out that such violations were results of three chief factors: lack of understanding of the act by operators, inadequate enforcement personnel, insufficient penalties.

The 1947 legislature enacted a number of amendments recommended by the State Board of Forestry and supported by the industry. Possibly the most important of these changes dealt with clarification of the state's authority over owners and operators. Under longstanding Oregon fire statutes, operators (and owners) were held responsible for hazards created by logging and customarily were not released from such responsibility until the debris caused by their harvesting had been removed by burning. Such burning is a painstaking job, which is done at the operator's expense, and in which state men assist. The problem of removing slashings without destruction of trees left for seeding purposes added to operator and owner responsibility.

By legislation it now became established that completion of harvesting could not be effected until slash burning had been done in a satisfactory manner; in other words, fire protection and reforestation were recognized as twin considerations under the law.

Another Oregon statute long in effect has required "west side" operators to secure permits to use machinery in the woods, its object being to enable the state forester to enforce fire safety measures by controlling careless or non-conforming operators. No such law applied to the pine forests of east Oregon. The State Board of Forestry has found the operating permit law of great value in dealing with recalcitrants, so asked that the legislature apply the principle to the reforestation law by requiring that all harvesting of commercial woodlands be put under permits. This was done.

Again the penalty for non-compliance was increased, this time to $320 for each forty acres found in violation, or $8 for each acre. And the amended law now required the state to wait five years after harvesting before declaring planting necessary. However, violation of seed source requirements now involves posting of penalty sums with the Board of Forestry immediately after logging. Certain operators elect to plant or even to have the state plant for them, and provide funds accordingly.

Another difficult problem dealt with by the 1947 legislature was that of evasion of the act through declaration of intent to put timbered lands to agricultural use. The test now is to be actual clearing and development of such declared uses within five years. If inspection at the end of the waiting period discloses non-effectuation of higher use, the area will be declared in violation and the state forester will reforest the lands at the owners' expense.

Forty-four men now spend part or all their time administering the so-called Oregon Conservation Act. Thirty-two fire law inspectors report regularly upon the condition of operations visited by them. If, in their judgment, there is violation of the harvesting law, they report the fact to the assistant state forester in charge of the forest practices work, and one or two of his staff of highly skilled technical foresters follow up each such report.

These field men bring in detailed cruises of each area, and if noncompliance is a fact their records will

show it in detail. At first, several operators had their own engineers go out and recheck these findings. Results always bore out the validity of the state field work, so the operators seldom bother to question the state determinations. Yet it is state policy still to urge all such violators to go to the field for rechecking, because it always is helpful for them to make such contacts with the realities of the reforestation law.

Of course, the chief objectives are not to turn up large numbers of violations and make the penalties "stick," but rather to secure compliance of all operators and reduce violations to insignificance. To this end all field men work at informing owners and operators regarding the law and the advantages of planning for compliance in advance of actual logging. Practically all of the large owners and operators whose holdings give promise of more than a few years in business now plan reforestation along with cutting. The state studies and approves these plans, and later checks upon how well they have been carried out.

The record of inspections and penalty payments is interesting, as is that of pre-planning:

Year	*1942*	*1943*	*1944*	*1945*	*1946*	*1947*	*Total*
Number of Violations	25	40	73	68	19	25	250
Acres cut in violation	2,393	5,394	8,466	8,673	2,105	3,850	30,881
Planting Fees	$5,982	$20,227	$26,665	$27,317	$6,629	$20,005	$106,825
Acres of Approved Plans					52,290	32,900	85,190

It should be explained that the Oregon Forestry Code does not profess to bring about the practice of intensive forestry. Rather it is a body of stop-loss laws intended to assure reasonably prompt regeneration of timber trees upon cutover lands by stopping the ravages of fire and by providing seed sources to restock all areas or alternatively to secure from those who remove the old growth funds for replanting. Proponents of federal regulation of timber harvesting were not enthusiastic regarding the Oregon experiment, and probably are not wholly convinced as yet.

As was noted early in this record, the skeptics began, even before the law was passed, to question the adequacy of its provisions to reseed the land after logging. Yet in the past seven years little change has been made in the seed source requirements, while there has been much strengthening of means of securing compliance. Such concentration upon enforcement has been sound, for there is little point to improving the subject matter of a law unless and until it can be enforced. On the other hand, Oregon foresters have been quite conscious of the fact that not enough is known about either natural or artificial reseeding.

So one of the most important activities of the forestry department is, and for some time has been, reseeding research. Experiments are being carried on with various methods of direct and natural seed distribution. Nearly $30,000 is available yearly for this work, which is combined with a project to restock certain large burned areas, including parts of the Tillamook burn. In general there are two questions to be answered: are present provisions adequate to effectuate natural reseeding upon areas where seed trees are present?—can artificial reseeding be accomplished for an average cost of $8 an acre upon large areas?

Interesting results are being obtained. It begins to appear that seed source requirements actually are surprisingly effective, given good performance in slash burning. Also, by using new equipment, such as helicopters and seed disseminators, it appears that splendid results can be obtained from direct seeding of such valuable species as Douglasfir and sitka spruce, and at fairly low cost. Not the least interesting angle of all this is the fact that operators are watching the experiments closely, anxious to be guided by them in their planning for prompt reseeding of their own lands.

Forest in the Rockies

(*From page* 299)

years, Zane Grey visited the Trappers Lake area, found sport fishing and material for one of his most famous books. And now once again this is one of the West's most noted game areas.

The trite and over-used term "Fisherman's Paradise" does apply to the streams and lakes of the White River. The native trout are the black spotted variety of the cutthroat. At Trappers Lake this species reaches an apex in size, fight, coloration and pureness of strain. In many other waters, these cutthroats, the introduced rainbows, brook trout and

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An Opportunity to Pay Tribute to Fire Heroes

The American Forest Fire Medal Board recognizes outstanding cases of heroism in fire fighting by awarding the Medal illustrated above. The Board consists of a representative of The American Forestry Association, Society of American Foresters, Charles Lathrop Pack Forestry Foundation, Association of State Foresters, American Forest Products Industries, and the Canadian Society of Forest Engineers.

To establish this Award on a permanent basis, a fund of $3,000 is planned. Cash balance on hand totals $2,930. Your assistance in completing this fund is invited. It is believed that foresters, forestry, park, and forest protection associations, and other conservation groups, will welcome the opportunity to contribute. Send contributions to:

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brown trout are so abundant they spell out "good fishing" — and no chance of misapplying the term.

The wildlife values in the White River forest are high. But there are those who seek its fastnesses purely for the experience of riding its trails, climbing its peaks, and finding genuine back country. Two wilderness areas have been set aside: one that embraces a larger part of the sky-empire of the White River Plateau, and the other the superb welter of scenic mountains centering around Snowmass Peak.

An attempt to list the climaxes of earth piled into mountains and cut into canyons would be frustrated by the sheer size of such a tabulation. The sweep of the Flat Top to the north, with its park-like stands of evergreens and meadows accented by lakes and beetling cliffs that rim this upland, the tapestry rocks banded with colors resembling old Oriental rugs that rise from the exquisite splendor of Trappers Lake, the curious rampart of the Devil's Causeway, a thin fin of rocks connecting two tablelands—to begin to catalog the scenic superlatives in the White River leads into an endless maze of striking grandeur and intimate bits of delightful nooks.

Here is a supreme horseback country (scene of two expeditions of The American Forestry Association's Trail Riders of the Wilderness); a land where trails lead to and through solitude's strongholds. Campfires flicker beside laughing brooks or mirror lakes. For the mountain climber, there are peaks that challenge—Snowmass, Capitol, Pyramid, Holy Cross, Maroon Bells and many others that thrust above or toward the 14,000-foot mark. When winter comes, the ski center at Aspen draws crowds. The longest chair lift in the world has been installed there. And winter sports attract others to good skiing and snow country.

Not measured in money terms perhaps, but priceless in the values there, the White River National Forest rates tops in offerings in human uses.

The men who contributed to the protection and development of this, the second forest established, should be mentioned. The first superviser was Charles W. Ramer, father of the late John E. Ramer who at one time served as Minister to Nicaragua. Next in line was Peter Randolph Morris, grandson of Gouverneur Morris, one of those who framed the federal Constitution. Above all stands the memory of that grand old forest man, Jim Blair. He became supervisor in 1906 after working on the local newspaper, the Meeker *Herald*. Jim guided the destiny of the White River forest until 1928, when sudden death that came on a field trip, practically as Jim was in the saddle, sent his spirit riding out on a New Trail.

To enumerate all the accomplishments of these pioneering men, and those who have followed, would produce a volume filled with a narrative of valiant service. The fire record can supply one quick index as to their achievements. In 1898, George B. Sudworth, while making a reconnaissance of this forest, estimated that some 80,000 acres of the forest had been burned-over that season. Records show that after the Forest Service organized fire protection thirty-nine years ago, the burned-over area has averaged only 119 acres a year.

From the first years, when vitriolic opposition met the establishment of this forest and the men who undertook to administer and manage it, to the present as it contributes mightily to the welfare of the community both local and at large, the history of the White River is a vivid cross section of the story of many western national forests. As it now offers and supplies so much in timber, watershed protection, wildlife, human use and enjoyment, grazing and many other values, this forest defines the place of the national forests, locally, regionally and nationally. In itself, the story of the White River, the second national forest established, is colorful, inspiring and reassuring. As an example of a typical forest of the Rocky Mountains, it is outstanding.

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The Purpose

The American Forestry Association is a national organization—educational in character—for the advancement of the intelligent management and use of the country's forests and related resources of soil, water, wildlife and outdoor recreation. Its purpose is (1) to bring about adequate protection and perpetuation of these resources by creating an enlightened public appreciation of the need of conserving them through wise use for the present and future welfare and enjoyment of all the people; (2) to make available to Americans in all walks of life a wider knowledge and appreciation of their forest resources and the part they can play in the social and industrial life of our nation.

The History MORE THAN half a century ago American men and women of vision, stirred by the rapid destruction of forests and forest life in the United States, began to raise their voices in behalf of conservation. Foreseeing the danger of allowing America's rich forests and vast natural wealth to be thoughtlessly wasted, these public-spirited individuals protested the needless destruction that was taking place. Out of their efforts came a collective force—The American Forestry Association, first organized in 1875 and made a national influence in 1882.

The Record THUS The American Forestry Association has a long record of efficient public service. The establishment of the United States Forest Service and the creation of the nationwide system of state and national forests and parks were due in no small part to the Association's efforts. Its educational work, extending over more than seventy years, has stimulated public action and built public support for protection against forest fires and floods; for prevention and control of soil erosion; for the development of conservation policies in forest management for continuous production through wise use; for the control of forest insects and diseases and the preservation of fish and wildlife.

The Support FROM AN ORGANIZATION of a few hundred members a half century ago, the Association has attained a substantial membership of many thousand men and women, living in every state of the Union and in foreign countries throughout the world. The funds of the Association are administered by a Board of Directors composed of individuals of national standing—men and women who give their services free, who have a practical understanding of the nation's present-day conservation needs, and are equipped through experience, ability, enthusiasm and training to advance the Association's program.

The Program BECAUSE OF its independent, non-political character, the work of The American Forestry Association is vitally necessary in the field of public service. It provides an unprejudiced influence for the development of sound conservation measures. It helps coordinate public, state and federal policies. It cooperates closely with federal, state and private agencies in conservation work. At the same time it initiates, sponsors and carries on needed projects in conservation in addition to its regular broad continuous program of education.

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